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=> d his

     (FILE 'HOME' ENTERED AT 12:54:47 ON 02 MAR 2006)
               SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 12:55:08 ON 02 MAR 2006
L1             1 S US20040209802/PN OR (US2003-706701# OR EP2002-26342)/AP,PRN
               E LEHMANN P/AU
L2           272 S E3-E6,E11-E14
               E ROEDDIGER R/AU
L3             9 S E3,E4
               E RODDIGER R/AU
L4             2 S E4
               E WALTER MATSUI R/AU
L5             4 S E3,E4
               E WALTER R/AU
L6           545 S E3-E21
               E WALTER RUTH/AU
L7             3 S E4,E5
               E MATSUI R/AU
L8            15 S E3
L9         12362 S ?ERYTHROPOIETIN?
L10          613 S ?EPOETIN?
L11           10 S L1-L8 AND L9,L10
L12            2 S EPO AND L1-L8
L13           10 S L11,L12
               SEL RN

     FILE 'REGISTRY' ENTERED AT 12:59:44 ON 02 MAR 2006
L14           33 S E1-E33
L15           10 S L14 AND ERYTHROPOIETIN
L16            3 S L14 AND EPOETIN
L17           10 S L15,L16
L18         1887 S ?ERYTHROPOIETIN?/CNS OR EPOETIN
L19         1887 S L17,L18

     FILE 'HCAPLUS' ENTERED AT 13:02:46 ON 02 MAR 2006
L20        10302 S L19
L21          158 S EPOGIS OR HEBERITRO OR HEMPOIETIN# OR EPOGEN# OR EPREX OR ERY
L22         6309 S EPO
L23        15162 S L9,L10,L20-L22
L24           10 S L1-L8 AND L23
L25           10 S L13,L24

     FILE 'REGISTRY' ENTERED AT 13:04:28 ON 02 MAR 2006
L26            1 S PEG/CN
               E OXIRANE/CN
L27            1 S E3
L28            1 S E7
L29            2 S L26-L28
L30            0 S L19 AND C2H4O

     FILE 'HCAPLUS' ENTERED AT 13:05:43 ON 02 MAR 2006
L31          300 S L29 AND L23
L32            1 S L31 AND L25
L33            1 S L1 AND L13,L32
L34            2 S L32,L33
L35            2 S L34 AND L23

     FILE 'REGISTRY' ENTERED AT 13:07:32 ON 02 MAR 2006
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L36          23 S L14 NOT L19
L37          22 S L36 NOT L29
                SEL RN L29
L38       37103 S E1-E2/CRN
L39       67668 S C2H4O NOT L29,L38

     FILE 'HCAPLUS' ENTERED AT 13:09:21 ON 02 MAR 2006
L40         131 S L38 AND L23
L41         458 S L39 AND L23
L42         509 S L31,L40,L41
                E POLYOXYALKYLENE/CT
                E POLYOXYALKYLENE,/CT
                E POLYOXYALKYLENES/CT
L43         333 S E3 AND L23
L44         333 S POLYOXYALKYLENE#/CW AND L23
L45         333 S POLYOXYALKYLENE?/CT AND L23
L46         541 S L42-L45
L47           1 S L46 AND L13
L48           2 S L35,L47
L49           6 S L46 AND (HOFFMAN? OR LAROCHE? OR LA ROCHE?)/PA,CS
L50         374 S L23 AND (PEG OR PEGYLAT? OR POLYETHYLENEGLYCOL OR POLYETHYLEN
L51          28 S L23 AND (POLYETHYLENEOXIDE OR POLYETHYLENE OXIDE OR POLY()(ET
L52          48 S L23 AND (POLYOXYETHYLENE OR POLYOXY ETHYLENE OR POLY()(OXYETH
L53         617 S L46,L50-L52
L54           7 S L53 AND (L1-L8 OR (HOFFMAN? OR LAROCHE? OR LA ROCHE?)/PA,CS)
L55           8 S L48,L49,L54
L56         540 S L53 AND (PY<=2003 OR PRY<=2003 OR AY<=2003)
L57         127 S L56 AND ?CONJUGAT?
                SEL RN L55

     FILE 'REGISTRY' ENTERED AT 13:22:39 ON 02 MAR 2006
L58          53 S E1-E53
L59          16 S L58 AND L19
L60           1 S L58 AND L29
L61           4 S L58 AND C2H4O
L62           4 S L60,L61
L63           3 S L62 NOT C3H6O
L64          34 S L58 NOT L59,L63
L65          12 S L64 AND SQL/FA
L66           1 S 439058-22-7

     FILE 'HCAPLUS' ENTERED AT 13:30:22 ON 02 MAR 2006
L67           1 S L66
L68           1 S L67 AND L53
L69           8 S L55,L68

     FILE 'REGISTRY' ENTERED AT 13:31:31 ON 02 MAR 2006
L70      104771 S L38,L39

     FILE 'HCAPLUS' ENTERED AT 13:38:29 ON 02 MAR 2006
L71             TRA L53 1- RN :    12594 TERMS

     FILE 'REGISTRY' ENTERED AT 13:39:01 ON 02 MAR 2006
L72       12594 SEA L71
L73         632 S L72 AND L70
L74         385 S L73 AND (N OR S)/ELS

     FILE 'HCAPLUS' ENTERED AT 13:42:41 ON 02 MAR 2006
L75             TRA L57 1- RN :     5556 TERMS
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     FILE 'REGISTRY' ENTERED AT 13:42:47 ON 02 MAR 2006
L76         5556 SEA L75
L77          357 S L76 AND C2H4O
L78          356 S L76 AND L70
L79          357 S L77,L78
L80           91 S L79 NOT (N OR S)/ELS
L81            7 S L80 AND ("(C2H4O)NH2O.2NA" OR "(C2H4O)NCH4O.NA" OR "(C2H4O)NC
L82          266 S L79 NOT L80
L83           61 S L82 AND NC4/ES
L84           34 S L83 AND 1/NR
                 SEL RN 10 19 20 26 27 32
L85            6 S E54-E59
L86           55 S L83 NOT L85
L87          205 S L82 NOT L83-L86
L88           32 S L87 AND S/ELS
L89            2 S L88 AND ("(C2H4O)NC2H6O3S" OR "(C2H4O)NC5H10O3S")/MF
L90          173 S L87 NOT L88
L91          118 S L90 NOT (C6 OR OC4 OR OC5)/ES
L92            4 S L91 AND ("(C2H4O)NC4H9NO3" OR "(C2H4O)NC8H18N2O2" OR "(C2H4O)
L93            3 S L92 NOT IMINO
L94           21 S L81,L29,L63,L85,L89,L93

     FILE 'HCAPLUS' ENTERED AT 14:08:34 ON 02 MAR 2006
L95          295 S L94 AND L23 AND (PY<=2003 OR PRY<=2003 OR AY<=2003)
L96          115 S L95 AND ?CONJUGAT?
L97          110 S L96 AND L20
L98            5 S L96 NOT L97
                 SEL AN 4
L99            1 S L98 AND E60-E61
L100         111 S L97,L99
L101          23 S L100 AND ?GLYCOSYLAT?
                 SEL AN 2 6 12 17 18 19 20 21 22
L102           9 S L101 AND E62-E79
L103          88 S L100 NOT L101
L104          21 S L103 AND ERYTHROPOIETIN/TI,AB
L105          67 S L103 NOT L104
L106          30 S L102,L104
L107          30 S L106 AND (PEG OR PEGYLAT? OR POLYETHYLENEGLYCOL OR POLYETHYLE
L108           0 S L106 AND (POLYETHYLENEOXIDE OR POLYETHYLENE OXIDE OR POLY(W)(
L109           3 S L106 AND (POLYOXYETHYLENE OR POLYOXY ETHYLENE OR POLY(W)(OXYE
L110          24 S L106 AND POLYOXYALKYLENE?/CT,CW
L111          30 S L106 AND L94
L112          30 S L107-L111

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 14:23:07 ON 02 MAR 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 2 Mar 2006 VOL 144 ISS 10
FILE LAST UPDATED: 1 Mar 2006 (20060301/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all hitstr tot l69

L69 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:570820 HCAPLUS
DN 143:72269
ED Entered STN: 01 Jul 2005
TI Use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases
IN Klima, Horst; **Lehmann, Paul**; **Roeddiger, Ralf**; **Walter-Matsui, Ruth**
PA F. **Hoffmann-La Roche** A.-G., Switz.
SO PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K0038-22
ICS A61P0001-00
CC 2-10 (Mammalian Hormones)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005058347	A1	20050630	WO 2004-EP14105	20041210
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005181986	A1	20050818	US 2004-13560	20041216
PRAI EP 2003-104832	A	20031219		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2005058347	ICM	A61K0038-22
	ICS	A61P0001-00
	IPCI	A61K0038-22 [ICM,7]; A61P0001-00 [ICS,7]
	IPCR	A61K0038-22 [I,A]; A61K0038-22 [I,C]
US 2005181986	IPCI	A61K0038-18 [ICM,7]
	IPCR	A61K0038-22 [I,A]; A61K0038-22 [I,C]
	NCL	514/008.000

AB The present invention relates to the use of **erythropoietin** for the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases.
ST **erythropoietin** treatment iron disturbance inflammatory intestinal disease

IT Inflammation
(Crohn's disease, morbus crohn; use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT Intestine, disease
(Crohn's, morbus crohn; use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT Inflammation
Intestine, disease
(colitis, colitis ulzerosa; use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT Intestine, disease
(inflammatory; use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT Human
Protein sequences
(use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT **Polyoxyalkylenes, biological studies**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT **855810-15-0, erythropoietin** (human) **855810-16-1, erythropoietin** (human)
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT 7439-89-6, Iron, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
IT **11096-26-7, Erythropoietin 11096-26-7D, Erythropoietin**, conjugated, **pegylated**, glycosylated **25322-68-3D, Poly(ethylene glycol), erythropoietin** conjugate **113427-24-0, Epoetin** alfa **122312-54-3**, Recormon **209810-58-2, Darbepoetin** alfa
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Dohil, R; JOURNAL OF PEDIATRICS 1998, V132(1), P155 HCAPLUS
(2) F Hoffmann-La Roche Ag; WO 0102017 A 2001 HCAPLUS
(3) F Hoffmann-La Roche Ag; WO 2004019972 A 2004 HCAPLUS
(4) F Hoffmann-La Roche Ag; WO 2004047858 A 2004 HCAPLUS
(5) Gasche, C; DIGESTION 1999, V60(3), P262 HCAPLUS
(6) Gasche, C; DIGESTIVE DISEASES AND SCIENCES 1994, V39(9), P1930 MEDLINE
(7) Kishore, B; WO 2004091495 A 2004 HCAPLUS

(8) Schreiber, S; NEW ENGLAND JOURNAL OF MEDICINE 1996, V334(10), P619 HCAPLUS
(9) Wilson, A; AMERICAN JOURNAL OF MEDICINE 2004, V116(Suppl 7A), P44

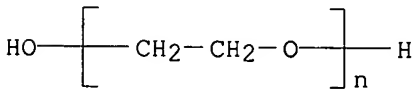
IT **855810-15-0, erythropoietin** (human) **855810-16-1 , erythropoietin** (human)
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
RN 855810-15-0 HCAPLUS
CN erythropoietin (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 855810-16-1 HCAPLUS
CN erythropoietin (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **11096-26-7, Erythropoietin 11096-26-7D, Erythropoietin**, conjugated, **pegylated**, glycosylated **25322-68-3D, Poly(ethylene glycol), erythropoietin** conjugate **113427-24-0, Epoetin** alfa **122312-54-3**, Recormon **209810-58-2, Darbepoetin** alfa
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** or **erythropoietin** conjugates in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)
RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 25322-68-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



RN 113427-24-0 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety), glycoform α (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 122312-54-3 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety), glycoform β (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 209810-58-2 HCAPLUS
CN Erythropoietin [30-asparagine,32-threonine,87-valine,88-asparagine,90-threonine] (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L69 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:467755 HCAPLUS
DN 141:34188
ED Entered STN: 10 Jun 2004
TI Methods for the use of **erythropoietin** and its derivatives for the treatment of heart diseases
IN **Lehmann, Paul; Roeddiger, Ralf; Walter-Matsui, Ruth**
PA F. Hoffmann-La Roche A.-G., Switz.
SO PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K0038-22
ICS A61P0007-06; A61P0009-04
CC 2-10 (Mammalian Hormones)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004047858	A1	20040610	WO 2003-EP12822	20031117 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2004209802	A1	20041021	US 2003-706701	20031112 <--
	CA 2505524	AA	20040610	CA 2003-2505524	20031117 <--
	EP 1565206	A1	20050824	EP 2003-779949	20031117 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	BR 2003016438	A	20051011	BR 2003-16438	20031117 <--
PRAI	EP 2002-26342	A	20021122 <--		
	WO 2003-EP12822	W	20031117		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004047858	ICM	A61K0038-22
	ICS	A61P0007-06; A61P0009-04
	IPCI	A61K0038-22 [ICM,7]; A61P0007-06 [ICS,7]; A61P0009-04 [ICS,7]
	IPCR	A61K0038-18 [I,A]; A61K0038-18 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]
	ECLA	A61K038/18B; A61K047/48H4P <--
US 2004209802	IPCI	A61K0038-18 [ICM,7]
	IPCR	A61K0038-18 [I,A]; A61K0038-18 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]
	NCL	514/012.000
	ECLA	A61K038/18B; A61K047/48H4P <--
CA 2505524	IPCI	A61K0038-22 [ICM,7]; A61P0009-04 [ICS,7]; A61P0007-06 [ICS,7]
	ECLA	A61K038/18B; A61K047/48H4P <--
EP 1565206	IPCI	A61K0038-22 [ICM,7]; A61P0007-06 [ICS,7]; A61P0009-04 [ICS,7]

IPCR A61K0038-22 [I,A]; A61K0038-22 [I,C]; A61P0007-00 [I,C]; A61P0007-06 [I,A]; A61P0009-00 [I,C]; A61P0009-04 [I,A] <--
BR 2003016438 IPCI A61K0038-22 [ICM,7]; A61P0007-06 [ICS,7]; A61P0009-04 [ICS,7]
ECLA A61K038/18B; A61K047/48H4P <--

AB The present invention relates to the use of **erythropoietin** for the treatment of disturbances of iron distribution in heart diseases.

ST **erythropoietin epoetin darbepoetin** heart disease treatment iron distribution disturbance

IT Proteins
RL: DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(C-reactive, to diagnose cardiac iron distribution disturbances; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT Erythrocyte
Reticulocyte
(**EPO**-stimulated production; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT Heart, disease
(failure; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT Heart, disease
Human
Protein sequences
(methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT Bone marrow
(production of reticulocytes, **EPO**-stimulated; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT Transferrin receptors
RL: DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(soluble, to diagnose cardiac iron distribution disturbances; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT Ferritins
RL: DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(to diagnose cardiac iron distribution disturbances; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT **702719-61-7, Erythropoietin** (human) **702719-62-8**
, **Erythropoietin** (human)
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT 7439-89-6, Iron, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(disturbances in cardiac distribution; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT **11096-26-7, Erythropoietin**
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

IT **11096-26-7D, Erythropoietin**, conjugates and derivs.
113427-24-0, Epoetin alfa **122312-54-3,**

Epoetin beta **209810-58-2**, **Darbepoetin** alfa
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) de Valk, B; ARCHIVES OF INTERNAL MEDICINE 1999, V159(14), P1542 MEDLINE
(2) Ernst, S; US 2002115833 A1 2002 HCAPLUS
(3) La Roche, H; WO 03025583 A 2003 HCAPLUS
(4) Peeters, H; RHEUMATOLOGY INTERNATIONAL 1999, V18, P201 HCAPLUS
(5) Silverberg, D; US 2002065214 A1 2002
(6) Thomas, C; CLINICAL CHEMISTRY 2002, V48(7), P1066 HCAPLUS

IT **702719-61-7**, **Erythropoietin** (human) **702719-62-8**, **Erythropoietin** (human)
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

RN 702719-61-7 HCAPLUS
CN Erythropoietin (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 702719-62-8 HCAPLUS
CN Erythropoietin (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **11096-26-7**, **Erythropoietin**
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **11096-26-7D**, **Erythropoietin**, conjugates and derivs.
113427-24-0, **Epoetin** alfa **122312-54-3**, **Epoetin** beta **209810-58-2**, **Darbepoetin** alfa
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(methods for use of **erythropoietin** (**EPO**) and its derivs. for treatment of heart diseases)

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 113427-24-0 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety), glycoform α (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 122312-54-3 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety), glycoform β (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 209810-58-2 HCAPLUS
CN Erythropoietin [30-asparagine,32-threonine,87-valine,88-asparagine,90-threonine] (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L69 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:203692 HCAPLUS
DN 140:229921
ED Entered STN: 14 Mar 2004
TI Use of **erythropoietin** and analogs to treat disturbances of iron distribution in diabetes
IN **Lehmann, Paul; Roeddiger, Ralf; Walter-Matsui, Ruth**
PA F. **Hoffmann-La Roche** A.-G., Switz.
SO PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K0038-18
ICS A61P0007-06; A61P0039-00
CC 2-10 (Mammalian Hormones)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004019972	A1	20040311	WO 2003-EP9194	20030820
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2004110679	A1	20040610	US 2003-634477	20030804
	CA 2496581	AA	20040311	CA 2003-2496581	20030820
	AU 2003251713	A1	20040319	AU 2003-251713	20030820
	EP 1536823	A1	20050608	EP 2003-790911	20030820
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	BR 2003013792	A	20050712	BR 2003-13792	20030820
	CN 1678341	A	20051005	CN 2003-820545	20030820
	JP 2006503821	T2	20060202	JP 2004-532098	20030820
PRAI	EP 2002-19100	A	20020829		
	WO 2003-EP9194	W	20030820		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004019972	ICM	A61K0038-18
	ICS	A61P0007-06; A61P0039-00
	IPCI	A61K0038-18 [ICM,7]; A61P0007-06 [ICS,7]; A61P0039-00 [ICS,7]
	IPCR	A61K0038-18 [I,A]; A61K0038-18 [I,C]
	ECLA	A61K038/18B
US 2004110679	IPCI	A61K0038-18 [ICM,7]
	IPCR	A61K0038-18 [I,A]; A61K0038-18 [I,C]
	NCL	514/012.000
	ECLA	A61K038/18B
CA 2496581	IPCI	A61K0038-18 [ICM,7]; A61P0039-00 [ICS,7]; A61P0007-06 [ICS,7]
AU 2003251713	IPCI	A61K0038-18 [ICM,7]; A61P0007-06 [ICS,7]; A61P0039-00

		[ICS,7]
EP 1536823	IPCI	A61K0038-18 [ICM,7]; A61P0007-06 [ICS,7]; A61P0039-00 [ICS,7]
	IPCR	A61K0038-18 [I,A]; A61K0038-18 [I,C]; A61P0007-00 [I,C]; A61P0007-06 [I,A]; A61P0039-00 [I,A]; A61P0039-00 [I,C]
BR 2003013792	IPCI	A61K0038-18 [ICM,7]; A61P0007-06 [ICS,7]; A61P0039-00 [ICS,7]
	ECLA	A61K038/18B
CN 1678341	IPCI	A61K0038-18 [ICM,7]; A61P0007-06 [ICS,7]; A61P0039-00 [ICS,7]
	ECLA	A61K038/18B
JP 2006503821	IPCI	A61K0038-22 [I,A]; A61K0047-48 [I,A]; A61P0007-00 [I,A]; A61P0043-00 [I,A]; C07K0014-505 [N,A]
	FTERM	4C076/CC41; 4C076/EE59; 4C076/FF33; 4C076/FF63; 4C076/FF67; 4C084/AA02; 4C084/BA01; 4C084/BA08; 4C084/BA22; 4C084/BA23; 4C084/BA42; 4C084/CA18; 4C084/CA25; 4C084/CA59; 4C084/DB56; 4C084/NA03; 4C084/NA05; 4C084/NA06; 4C084/NA11; 4C084/NA13; 4C084/ZC021; 4C084/ZC022; 4C084/ZC351; 4H045/AA20; 4H045/AA30; 4H045/BA10; 4H045/BA57; 4H045/CA40; 4H045/DA13; 4H045/EA20; 4H045/FA50

AB The present invention relates to the use of **erythropoietin** for the treatment of disturbances of iron distribution in diabetes.

ST **erythropoietin** analogs iron distribution diabetes mellitus

IT Bone marrow
(**Epo**-stimulated erythropoiesis; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT Erythrocyte
Reticulocyte
(**Epo**-stimulated production; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT Erythropoiesis
(**Epo**-stimulated; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT Protein motifs
(**PEGylation** sites in the **Epo** sequence; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT Protein motifs
(glycosylation site, in the **Epo** sequence; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT Diabetes mellitus
(non-insulin-dependent; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT Diabetes mellitus
Human
Protein sequences
(use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT **668496-68-2 668496-69-3**
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT 7439-89-6, Iron, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)

(distribution disturbances; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT **11096-26-7, Erythropoietin 11096-26-7D, Erythropoietin**, glycosylated and **PEGylated** variants and conjugates
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

IT **113427-24-0, Epoetin** alfa **122312-54-3, Epoetin** beta **209810-58-2, Darbepoetin** alfa
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Harold, T; US 6440932 B1 2002 HCAPLUS
(2) Hoffmann La Roche; WO 0187329 A 2001 HCAPLUS
(3) Hoffmann La Roche; WO 03025583 A 2003 HCAPLUS

IT **668496-68-2 668496-69-3**
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

RN 668496-68-2 HCAPLUS
CN Erythropoietin (human 165-amino acids variant) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 668496-69-3 HCAPLUS
CN Erythropoietin (human 166-amino acids variant) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **11096-26-7, Erythropoietin 11096-26-7D, Erythropoietin**, glycosylated and **PEGylated** variants and conjugates
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **113427-24-0, Epoetin** alfa **122312-54-3, Epoetin** beta **209810-58-2, Darbepoetin** alfa
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** (**Epo**) and analogs to treat disturbances of iron distribution in diabetes)

RN 113427-24-0 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety), glycoform α (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 122312-54-3 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety), glycoform β (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 209810-58-2 HCAPLUS
CN Erythropoietin [30-asparagine,32-threonine,87-valine,88-asparagine,90-threonine] (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L69 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:282607 HCAPLUS
DN 138:298131
ED Entered STN: 11 Apr 2003
TI **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis
IN Tischer, Wilhelm
PA F. **Hoffmann-La Roche** Ag, Switz.
SO PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07K0014-505
CC 2-10 (Mammalian Hormones)
Section cross-reference(s): 34
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003029291	A2	20030410	WO 2002-EP10556	20020920
	WO 2003029291	A3	20030724		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003077753	A1	20030424	US 2002-241356	20020911
	US 6930086	B2	20050816		
	CA 2460489	AA	20030410	CA 2002-2460489	20020920
	EP 1432802	A2	20040630	EP 2002-777160	20020920
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	CN 1558952	A	20041229	CN 2002-818752	20020920
	JP 2005509609	T2	20050414	JP 2003-532536	20020920
PRAI	EP 2001-122555	A	20010925		
	WO 2002-EP10556	W	20020920		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003029291	ICM	C07K0014-505
	IPCI	C07K0014-505 [ICM,7]
	IPCR	A61K0038-00 [N,A]; A61K0038-00 [N,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0014-435 [I,C]; C07K0014-505 [I,A]
	ECLA	A61K047/48H4P; C07K014/505

US 2003077753	IPCI	C07K0014-575 [ICM,7]; C12P0021-04 [ICS,7]; C12N0005-06 [ICS,7]; A61K0038-24 [ICS,7]
	IPCR	A61K0038-00 [N,A]; A61K0038-00 [N,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0014-435 [I,C]; C07K0014-505 [I,A]
	NCL	435/069.600
	ECLA	A61K047/48H4P; C07K014/505
CA 2460489	IPCI	C07K0014-505 [ICM,7]; C12P0021-02 [ICS,7]; A61K0038-18 [ICS,7]
EP 1432802	IPCI	C12N0015-12 [ICM,7]
	IPCR	C12N0015-12 [I,A]; C12N0015-12 [I,C]
CN 1558952	IPCI	C12N0015-12 [ICM,7]; C07K0014-505 [ICS,7]; A61K0047-48 [ICS,7]
JP 2005509609	IPCI	C07K0014-505 [ICM,7]; A61K0038-22 [ICS,7]; A61P0007-06 [ICS,7]; C12P0021-02 [ICS,7]
	FTERM	4B064/AG18; 4B064/CA19; 4B064/CC24; 4B064/DA01; 4C084/AA02; 4C084/AA07; 4C084/BA01; 4C084/BA22; 4C084/BA34; 4C084/CA53; 4C084/DB56; 4C084/NA03; 4C084/ZA55; 4H045/AA10; 4H045/AA30; 4H045/BA10; 4H045/BA53; 4H045/BA57; 4H045/CA40; 4H045/DA13; 4H045/EA24; 4H045/FA33; 4H045/FA50; 4H045/FA74

AB The invention provides a new class of **EPO** muteins with improved pharmaceutical properties. The **EPO** muteins according to the invention have the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells. The invention provides an **erythropoietin** mutein which has retained the potential N-glycosylation sites at Asn24, Asn38, Asn83, is N-glycosylated at Asn38 and Asn83 but is not N-glycosylated at Asn24 and is preferably linked at the N-terminal amino group and/or the ε-amino group of Lys20 to **poly(ethylene glycol)** group(s) (**PEG**), preferably to alkoxypoly(ethylene glycol) group(s), more preferably to lower methoxypoly(ethylene glycol) group(s). The muteins of this invention have the same uses as **EPO**. In particular, the muteins of this invention are useful to treat patients by stimulating the division and differentiation of committed erythroid progenitors in the bone marrow. The present invention also includes a method for the treatment of anemia in humans and the use of the muteins for the manufacturing of a pharmaceutical agent preferably for such treatment. The present invention also includes a method for preparing **erythropoietin** muteins according to the invention, which comprises the production of a glycosylated **EPO** fragment consisting of the amino acids 26-165-(**EPO** 26-165) and subsequent fusion of said fragment with a nonglycosylated but preferably **PEGylated EPO** fragment consisting of the amino acids 1-28 (**EPO** 1-28).

ST **PEGylated** diglycosylated **erythropoietin** prepn anemia treatment

IT Erythropoiesis
Human
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT Anemia (disease)
(treatment; preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **510776-46-2DP**, muteins **510776-47-3DP**, muteins
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; preparation of **PEGylated** and diglycosylated

erythropoietin with improved pharmaceutical properties in induction of erythropoiesis)

IT **510776-48-4**, 29-165-**erythropoietin** (human)
RL: RCT (Reactant); RACT (Reactant or reagent)
(amino acid sequence; preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **11096-26-7DP**, **Erythropoietin**, muteins
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **92451-01-9DP**, **Erythropoietin** peptide conjugates
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT 100-39-0, Benzyl bromide **67665-18-3** 76931-93-6, Succinimidyl acetylthioacetate 84271-78-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **92451-01-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **510776-46-2DP**, muteins **510776-47-3DP**, muteins
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

RN 510776-46-2 HCAPLUS
CN Erythropoietin (human 165-amino acid isoform) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 510776-47-3 HCAPLUS
CN Erythropoietin (human 166-amino acid isoform) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **510776-48-4**, 29-165-**erythropoietin** (human)
RL: RCT (Reactant); RACT (Reactant or reagent)
(amino acid sequence; preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

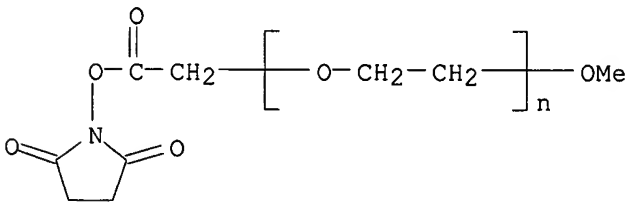
RN 510776-48-4 HCAPLUS
CN 29-165-erythropoietin (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

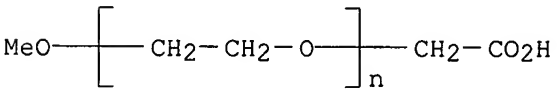
IT **11096-26-7DP**, **Erythropoietin**, muteins
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study);

PREP (Preparation); USES (Uses)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)
RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

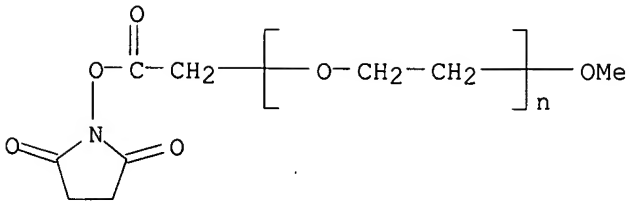
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **92451-01-9DP, Erythropoietin** peptide conjugates
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)
RN 92451-01-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-[2-[(2,5-dioxo-1-pyrrolidinyl)oxy]-2-oxoethyl]-ω-methoxy- (9CI) (CA INDEX NAME)



IT **67665-18-3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)
RN 67665-18-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(carboxymethyl)-ω-methoxy- (9CI) (CA INDEX NAME)



IT **92451-01-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of **PEGylated** and diglycosylated **erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)
RN 92451-01-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-[2-[(2,5-dioxo-1-pyrrolidinyl)oxy]-2-oxoethyl]-ω-methoxy- (9CI) (CA INDEX NAME)



L69 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:487418 HCAPLUS
DN 137:68127
ED Entered STN: 28 Jun 2002
TI **Erythropoietin** conjugates
IN Burg, Josef; Engel, Alfred; Franze, Reinhard; Hilger, Bernd; Schurig, Hartmut Ernst; Tischer, Wilhelm; Wozny, Manfred
PA F. **Hoffmann-La Roche** Ag, Switz.
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K0047-48
CC 63-3 (Pharmaceuticals)
Section cross-reference(s): 2, 16
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002049673	A2	20020627	WO 2001-EP14434	20011208
	WO 2002049673	A3	20030123		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2431964	AA	20020627	CA 2001-2431964	20011208
	AU 2002033230	A5	20020701	AU 2002-33230	20011208
	EP 1345628	A2	20030924	EP 2001-984811	20011208
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	BR 2001016381	A	20040225	BR 2001-16381	20011208
	JP 2004525097	T2	20040819	JP 2002-551010	20011208
	CN 1527726	A	20040908	CN 2001-820609	20011208
	US 2002115833	A1	20020822	US 2001-14363	20011211
	ZA 2003004647	A	20040913	ZA 2003-4647	20030613
PRAI	EP 2000-127891	A	20001220		
	WO 2001-EP14434	W	20011208		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002049673	ICM	A61K0047-48
	IPCI	A61K0047-48 [ICM,7]
	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]
	ECLA	A61K047/48H4P; A61K047/48R
CA 2431964	IPCI	A61K0047-48 [ICM,7]; A61K0038-18 [ICS,7]; C07K0014-505

		[ICS,7]
AU 2002033230	IPCI	A61K0047-48 [ICM,7]
EP 1345628	IPCI	A61K0047-48 [ICM,7]
	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]
BR 2001016381	IPCI	A61K0047-48 [ICM,7]
JP 2004525097	IPCI	C07K0014-505 [ICM,7]; A61K0047-48 [ICS,7]; A61P0007-06 [ICS,7]; A61P0013-12 [ICS,7]; A61P0031-18 [ICS,7]; A61P0035-00 [ICS,7]; C07K0001-113 [ICS,7]; C12P0021-02 [ICS,7]
	FTERM	4B064/AG18; 4B064/CA10; 4B064/CA19; 4B064/CC01; 4B064/CC24; 4B064/CE06; 4B064/CE10; 4B064/CE12; 4B064/CE20; 4B064/DA01; 4B064/DA13; 4C076/AA12; 4C076/BB11; 4C076/CC14; 4C076/CC17; 4C076/CC27; 4C076/CC35; 4C076/EE23Q; 4C076/EE59M; 4C076/FF65; 4C076/FF66; 4C076/GG45; 4C076/GG46; 4H045/AA10; 4H045/AA20; 4H045/AA30; 4H045/BA10; 4H045/BA41; 4H045/BA53; 4H045/BA57; 4H045/CA40; 4H045/DA13; 4H045/EA20; 4H045/EA50; 4H045/FA16; 4H045/FA58; 4H045/FA74; 4H045/GA10; 4H045/GA20; 4H045/GA24; 4H045/GA26
CN 1527726	IPCI	A61K0047-48 [ICM,7]; C07K0014-505 [ICS,7]; A61K0038-18 [ICS,7]
US 2002115833	IPCI	A61K0038-22 [ICM,7]; C07K0014-575 [ICS,7]
	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]
	NCL	530/395.000
	ECLA	A61K047/48H4P; A61K047/48R
ZA 2003004647	IPCI	A61K [ICM,7]; C07K [ICS,7]

AB The present invention refers to conjugates of **erythropoietin** with **poly(ethylene glycol)** comprising an **erythropoietin** glycoprotein having an N-terminal α-amino group and having the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and selected from the group consisting of human **erythropoietin** and analogs thereof which have the sequence of human **erythropoietin** modified by the addition of from 1 to 6 glycosylation sites or a rearrangement of at least one glycosylation site; said glycoprotein being covalently linked to one **poly(ethylene glycol)** group of the formula -CO-(CH2)x-(OCH2CH2)m-OR with the -CO of the **poly(ethylene glycol)** group forming an amide bond with said N-terminal α-amino group; wherein R is lower alkyl; x is 2 or 3; and m is from about 450 to about 1350.

ST **erythropoietin** conjugate **PEG** bone marrow proliferation

IT Neoplasm
(anemia from chemotherapy of; glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT AIDS (disease)
Chemotherapy
(anemia from; glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT **Polyoxyalkylenes, reactions**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**erythropoietin** conjugates; glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT Kidney, disease
(failure, chronic, anemia from; glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT Anemia (disease)
Bone marrow
Erythrocyte
Fermentation

Human
Molecular cloning
Protein sequences
Reticulocyte
cDNA sequences
(glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT Protein motifs
(glycosylation site; glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT Mutagenesis
(site-directed; glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT **11096-26-7DP, Erythropoietin,** conjugates
RL: PNU (Preparation, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT 498-23-7, Citraconic acid **11096-26-7, Erythropoietin** **25322-68-3D, Polyethylene glycol,** **erythropoietin** conjugates
RL: RCT (Reactant); RACT (Reactant or reagent)
(glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

IT 439058-21-6 **439058-22-7** 439058-23-8 439058-24-9 439058-25-0 439058-27-2, 5: PN: WO0249673 FIGURE: 3 unclaimed DNA
RL: PRP (Properties)
(unclaimed protein sequence; **erythropoietin** conjugates)

IT 439058-28-3 439058-29-4 439058-30-7 439058-31-8 439058-32-9
RL: PRP (Properties)
(unclaimed sequence; **erythropoietin** conjugates)

IT **11096-26-7DP, Erythropoietin,** conjugates
RL: PNU (Preparation, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

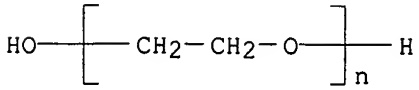
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **11096-26-7, Erythropoietin 25322-68-3D,** **Polyethylene glycol, erythropoietin** conjugates
RL: RCT (Reactant); RACT (Reactant or reagent)
(glycosylation site-augmented human **erythropoietin** conjugates with **PEG**)

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 25322-68-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IT **439058-22-7**

RL: PRP (Properties)
(unclaimed protein sequence; **erythropoietin** conjugates)
RN 439058-22-7 HCAPLUS
CN 1: PN: WO0249673 SEQID: 1 unclaimed protein (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L69 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:850963 HCAPLUS
DN 136:11065
ED Entered STN: 23 Nov 2001
TI New pharmaceutical composition
IN Papadimitriou, Apollon
PA F. **Hoffmann-La Roche** A.-G., Switz.
SO PCT Int. Appl., 64 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K0038-18
ICS A61K0009-08; A61K0047-02; A61K0047-18
CC 63-3 (Pharmaceuticals)
Section cross-reference(s): 2, 16
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001087329	A1	20011122	WO 2001-EP5187	20010508
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CO, CU, CZ, DE, DK, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2408685	AA	20011122	CA 2001-2408685	20010508
	BR 2001010914	A	20030211	BR 2001-10914	20010508
	EP 1311285	A2	20030521	EP 2001-943331	20010508
	EP 1311285	B1	20050323		
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	JP 2003533487	T2	20031111	JP 2001-583796	20010508
	NZ 522030	A	20041126	NZ 2001-522030	20010508
	AT 291436	E	20050415	AT 2001-943331	20010508
	EP 1525889	A1	20050427	EP 2005-984	20010508
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, CY, TR				
	PT 1311285	T	20050630	PT 2001-943331	20010508
	ES 2237574	T3	20050801	ES 2001-1943331	20010508
	US 2002037841	A1	20020328	US 2001-853731	20010511
	ZA 2002008500	A	20040128	ZA 2002-8500	20021021
	NO 2002005450	A	20021114	NO 2002-5450	20021114
	US 2004147431	A1	20040729	US 2004-780297	20040217
PRAI	EP 2000-110355	A	20000515		
	EP 2001-943331	A3	20010508		
	WO 2001-EP5187	W	20010508		
	US 2001-853731	A1	20010511		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001087329	ICM	A61K0038-18

	ICS	A61K0009-08; A61K0047-02; A61K0047-18
	IPCI	A61K0038-18 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-02 [ICS,7]; A61K0047-18 [ICS,7]
	IPCR	A61K0009-08 [I,A]; A61K0009-08 [I,C]; A61K0038-18 [I,A]; A61K0038-18 [I,C]; A61K0047-02 [I,A]; A61K0047-02 [I,C]; A61K0047-16 [I,C]; A61K0047-18 [I,A]
	ECLA	A61K009/08; A61K038/18B; A61K047/02; A61K047/18B
CA 2408685	IPCI	A61K0038-18 [ICM,7]; A61K0047-02 [ICS,7]; A61K0009-08 [ICS,7]; A61K0047-18 [ICS,7]
BR 2001010914	IPCI	A61K0038-18 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-02 [ICS,7]; A61K0047-18 [ICS,7]
EP 1311285	IPCI	A61K0038-18 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-02 [ICS,7]; A61K0047-18 [ICS,7]
	IPCR	A61K0009-08 [I,A]; A61K0009-08 [I,C]; A61K0038-18 [I,A]; A61K0038-18 [I,C]; A61K0047-02 [I,A]; A61K0047-02 [I,C]; A61K0047-16 [I,C]; A61K0047-18 [I,A]
JP 2003533487	IPCI	A61K0038-00 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-04 [ICS,7]; A61K0047-10 [ICS,7]; A61K0047-12 [ICS,7]; A61K0047-20 [ICS,7]; A61K0047-34 [ICS,7]; A61P0007-06 [ICS,7]; A61P0013-12 [ICS,7]; A61P0031-18 [ICS,7]; A61P0035-00 [ICS,7]; C07K0014-505 [ICS,7]
NZ 522030	IPCI	A61K0038-18 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-02 [ICS,7]; A61K0009-19 [ICS,7]; A61P0007-06 [ICS,7]; A61K0038-16 [ICS,7]; A61K0038-17 [ICS,7]; A61P0007-00 [ICS,7]
AT 291436	IPCI	A61K0038-18 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-02 [ICS,7]; A61K0047-18 [ICS,7]
EP 1525889	IPCI	A61K0038-18 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-02 [ICS,7]; A61K0047-18 [ICS,7]
	ECLA	A61K009/08; A61K047/02; A61K047/18B
PT 1311285	IPCI	A61K0038-18 [ICM,7]; A61K0009-08 [ICS,7]; A61K0047-02 [ICS,7]; A61K0047-18 [ICS,7]
	ECLA	A61K009/08; A61K038/18B; A61K047/02; A61K047/18B
ES 2237574	IPCI	A61K0038-18 [ICM,4]; A61K0009-08 [ICS,4]; A61K0047-02 [ICS,4]; A61K0047-18 [ICS,4]
US 2002037841	IPCI	A61K0038-22 [ICM,7]
	IPCR	A61K0009-08 [I,A]; A61K0009-08 [I,C]; A61K0038-18 [I,A]; A61K0038-18 [I,C]; A61K0047-02 [I,A]; A61K0047-02 [I,C]; A61K0047-16 [I,C]; A61K0047-18 [I,A]
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	ECLA	A61K009/08; A61K038/18B; A61K047/02; A61K047/18B
ZA 2002008500	IPCI	A61K [ICM,7]
NO 2002005450	IPCI	A61K0038-18 [ICM,7]; A61K0047-02 [ICS,7]; A61K0009-08 [ICS,7]
US 2004147431	IPCI	A61K0038-18 [ICM,7]
	IPCR	A61K0009-08 [I,A]; A61K0009-08 [I,C]; A61K0038-18 [I,A]; A61K0038-18 [I,C]; A61K0047-02 [I,A]; A61K0047-02 [I,C]; A61K0047-16 [I,C]; A61K0047-18 [I,A]
	NCL	514/008.000
	ECLA	A61K009/08; A61K038/18B; A61K047/02; A61K047/18B

AB The present invention relates to a liquid pharmaceutical composition comprising an **erythropoietin** protein, a multiple charged inorg. anion in a pharmaceutically acceptable buffer suitable to keep the solution pH in the range from about 5.5 to about 7.0, and optionally one or more pharmaceutically acceptable excipients. This composition is especially useful for the prophylaxis and treatment of diseases related to erythropoiesis.

ST **erythropoietin** protein pharmaceutical formulation sequence

IT AIDS (disease)
Chemotherapy

Neoplasm
(anemia from; stabilized **erythropoietin** pharmaceutical composition)
IT Kidney, disease
(failure, chronic, anemia from; stabilized **erythropoietin** pharmaceutical composition)
IT Drug delivery systems
(freeze-dried; stabilized **erythropoietin** pharmaceutical composition)
IT Protein motifs
(gycosylation sites; stabilized **erythropoietin** pharmaceutical composition)
IT Acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(inorg.; stabilized **erythropoietin** pharmaceutical composition)
IT Drug delivery systems
(liqs.; stabilized **erythropoietin** pharmaceutical composition)
IT Detergents
(nonionic; stabilized **erythropoietin** pharmaceutical composition)
IT Alcohols, biological studies
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polyhydric; stabilized **erythropoietin** pharmaceutical composition)
IT **Polyoxyalkylenes, biological studies**
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(protein conjugates; stabilized **erythropoietin** pharmaceutical composition)
IT Glycosylation
(sites for; stabilized **erythropoietin** pharmaceutical composition)
IT Drying
(spray; stabilized **erythropoietin** pharmaceutical composition)
IT Anemia (disease)
Antioxidants
Bone marrow
Buffers
Electrophoresis
Erythrocyte
Erythropoiesis
Fermentation
Molecular cloning
Preparative chromatography
Preservatives
Protein sequences
Reticulocyte
pH
(stabilized **erythropoietin** pharmaceutical composition)
IT Drug delivery systems
(sustained-release; stabilized **erythropoietin** pharmaceutical composition)
IT **96024-34-9P, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced) **134547-95-8P**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; stabilized **erythropoietin** pharmaceutical composition)
IT 74-79-3, Arginine, uses 7664-93-9, Sulfuric acid, uses 7757-82-6,

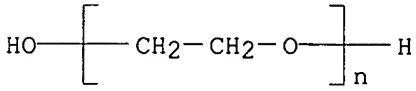
Sodium sulfate, uses
RL: NUU (Other use, unclassified); USES (Uses)
(buffer; stabilized **erythropoietin** pharmaceutical composition)
IT **11096-26-7P, Erythropoietin**
RL: BPN (Biosynthetic preparation); PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(stabilized **erythropoietin** pharmaceutical composition)
IT 126-44-3, Citrate ion, uses 14265-44-2, Phosphate, uses 14808-79-8, Sulfate anion, uses
RL: NUU (Other use, unclassified); USES (Uses)
(stabilized **erythropoietin** pharmaceutical composition)
IT 50-70-4, Sorbitol, biological studies 56-81-5, Glycerol, biological studies 57-50-1, Saccharose, biological studies 63-68-3, Methionine, biological studies 69-65-8, Mannitol 99-20-7, Trehalose 9005-64-5, Polysorbate 20 9005-65-6, Polysorbate 80 10043-52-4, Calcium chloride, biological studies **25322-68-3D, Polyethylene glycol**, protein conjugates **106392-12-5**, Pluronic f68
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(stabilized **erythropoietin** pharmaceutical composition)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Alkermes; WO 9640073 A 1996 HCAPLUS
(2) Chugai Seiyaku Kk; EP 0178665 A 1986 HCAPLUS
(3) Chugai Seiyaku Kk; GB 2171304 A 1986 HCAPLUS
(4) Chugai Seiyaku Kk; EP 0909564 A 1999 HCAPLUS
(5) Woog, H; US 4992419 A 1991 HCAPLUS
IT **96024-34-9P, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced) **134547-95-8P**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; stabilized **erythropoietin** pharmaceutical composition)
RN 96024-34-9 HCAPLUS
CN Erythropoietin (human clone λHEPOFL13 protein moiety reduced) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 134547-95-8 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety reduced) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **11096-26-7P, Erythropoietin**
RL: BPN (Biosynthetic preparation); PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(stabilized **erythropoietin** pharmaceutical composition)
RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **25322-68-3D, Polyethylene glycol**, protein conjugates **106392-12-5**, Pluronic f68

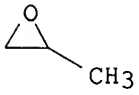
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(stabilized **erythropoietin** pharmaceutical composition)
RN 25322-68-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



RN 106392-12-5 HCAPLUS
CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8
CMF C2 H4 O

L69 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:31360 HCAPLUS
DN 134:105827
ED Entered STN: 12 Jan 2001
TI **Erythropoietin** derivatives
IN Burg, Josef; Hilger, Bernd; Josel, Hans-Peter
PA F. **Hoffmann-La Roche** A.-G., Switz.
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K0047-48
CC 63-3 (Pharmaceuticals)
Section cross-reference(s): 2, 34
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001002017	A2	20010111	WO 2000-EP6009	20000628

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,

MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,
TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

CA	2378533	AA	20010111	CA 2000-2378533	20000628
CA	2378533	C	20060214		
US	6340742	B1	20020122	US 2000-604871	20000628
EP	1196443	A2	20020417	EP 2000-951312	20000628
EP	1196443	B1	20040526		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

BR	2000012138	A	20020507	BR 2000-12138	20000628
TR	200103782	T2	20020521	TR 2001-200103782	20000628
JP	2003503464	T2	20030128	JP 2001-507507	20000628
AU	768452	B2	20031211	AU 2000-64299	20000628
NZ	516170	A	20040227	NZ 2000-516170	20000628
AT	267840	E	20040615	AT 2000-951312	20000628
RU	2232163	C2	20040710	RU 2002-102232	20000628
PT	1196443	T	20040930	PT 2000-951312	20000628
ES	2220501	T3	20041216	ES 2000-951312	20000628
ZA	2001010097	A	20030307	ZA 2001-10097	20011207
NO	2001006304	A	20020219	NO 2001-6304	20011221
HK	1047597	A1	20050812	HK 2002-109179	20021218
PRAI US	1999-142243P	P	19990702		
US	1999-147452P	P	19990805		
US	1999-151454P	P	19990830		
WO	2000-EP6009	W	20000628		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001002017	ICM	A61K0047-48
	IPCI	A61K0047-48 [ICM,7]
	IPCR	A61K0038-00 [N,A]; A61K0038-00 [N,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0014-435 [I,C]; C07K0014-505 [I,A]
	ECLA	A61K047/48H4P; C07K014/505
CA 2378533	IPCI	A61K0038-18 [I,A]; A61K0047-48 [I,A]; A61P0007-06 [I,A]; C07K0014-505 [I,A]
	IPCR	A61K0038-00 [N,A]; A61K0038-00 [N,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0014-435 [I,C]; C07K0014-505 [I,A]
	ECLA	A61K047/48H4P; C07K014/505
US 6340742	IPCI	A61K0038-18 [ICM,7]; C07K0014-505 [ICS,7]
	IPCR	A61K0038-00 [N,A]; A61K0038-00 [N,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0014-435 [I,C]; C07K0014-505 [I,A]
	NCL	530/351.000; 424/085.100; 530/408.000
	ECLA	A61K047/48H4P; C07K014/505
EP 1196443	IPCI	C07K0014-505 [ICM,6]; A61K0047-48 [ICS,6]
	IPCR	A61K0038-00 [N,A]; A61K0038-00 [N,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0014-435 [I,C]; C07K0014-505 [I,A]
BR 2000012138	IPCI	A61K0047-48 [ICM,7]
TR 200103782	IPCI	C07K0014-505 [ICM,7]; A61K0047-48 [ICS,7]
JP 2003503464	IPCI	A61K0038-22 [ICM,7]; A61K0047-48 [ICS,7]; A61P0007-06 [ICS,7]; A61P0013-12 [ICS,7]; A61P0031-18 [ICS,7]; A61P0035-00 [ICS,7]; C07K0014-505 [ICS,7]
AU 768452	IPCI	A61K0047-48 [ICM,7]
NZ 516170	IPCI	A61K0047-48 [ICM,7]

AT 267840	IPCI	C07K0014-505 [ICM,7]; A61K0047-48 [ICS,7]
RU 2232163	IPCI	C07K0014-505 [ICM,7]; A61K0047-48 [ICS,7]
PT 1196443	IPCI	C07K0014-505 [ICM,7]; A61K0047-48 [ICS,7]
ES 2220501	IPCI	C07K0014-505 [ICM,7]; A61K0047-48 [ICS,7]
ZA 2001010097	IPCI	C07K [ICM,7]; A61K [ICS,7]
NO 2001006304	IPCI	A61K0047-48 [ICM,7]
HK 1047597	IPCI	C07K [ICM,7]; A61K [ICS,7]
	ECLA	A61K047/48H4P; C07K014/505

AB **Erythropoietin** glycoprotein conjugates are disclosed, said conjugates comprise an **erythropoietin** glycoprotein having at least one free amino group and having the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and selected from the group consisting of human **erythropoietin** and analogs thereof which have the primary structure of human **erythropoietin** modified by the addition of from 1 to 6 glycosylation sites or by the rearrangement of at least one glycosylation site; said glycoprotein being covalently linked to form one to three lower-alkoxy **poly(ethylene glycol)** groups, each **poly(ethylene glycol)** group being covalently linked to the glycoprotein via a linker of the formula -C(O)-X-S-Y- with the C(O) of the linker forming an amide bond with one of said amino groups, wherein X and Y are as defined in the description and claims, the average mol. weight of each **poly(ethylene glycol)** moiety is from about 20 kilodaltons to about 40 kilodaltons, and the mol. weight of the conjugate is from about 51 kilodaltons to about 175 kilodaltons.

ST **erythropoietin polyethylene glycol** conjugate hematopoiesis stimulation

IT Chemotherapy
(anemia from; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT **Polyoxyalkylenes, biological studies**
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** conjugates; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT AIDS (disease)
Anemia (disease)
Coupling agents
Erythrocyte
Erythropoiesis
Protein sequences
Reticulocyte
(**erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT Glycoproteins, general, biological studies
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT Gene
(expression, **erythropoietin**-induced; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT Kidney, disease
(failure, chronic; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT Protein motifs
(glycosylation site; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT Bone marrow

(hematopoiesis in; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT **96024-34-9, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced) **134547-95-8**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(amino acid sequence; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT 9002-61-3, Human chorionic gonadotropin
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(carboxy terminal sequence of; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT 66090-83-3
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT **11096-26-7D, Erythropoietin**, conjugates
25322-68-3D, erythropoietin conjugates
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT **96024-34-9, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced) **134547-95-8**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(amino acid sequence; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

RN 96024-34-9 HCAPLUS
CN Erythropoietin (human clone λHEPOFL13 protein moiety reduced) (9CI) (CA INDEX NAME)

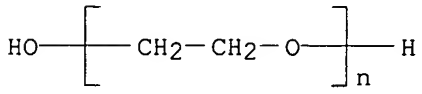
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 134547-95-8 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety reduced) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **11096-26-7D, Erythropoietin**, conjugates
25322-68-3D, erythropoietin conjugates
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 25322-68-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



L69 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:10610 HCAPLUS
DN 134:91083
ED Entered STN: 05 Jan 2001
TI **Erythropoietin** derivatives for increasing bone marrow production of reticulocytes and erythrocytes
IN Bailon, Pascal Sebastian
PA F. **Hoffmann-La Roche** A.-G., Switz.
SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM A61K0047-48
CC 63-3 (Pharmaceuticals)
Section cross-reference(s): 2
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1064951	A2	20010103	EP 2000-113115	20000628
	EP 1064951	A3	20020320		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6583272	B1	20030624	US 2000-604938	20000627
	CA 2310536	AA	20010102	CA 2000-2310536	20000628
	NO 2000003372	A	20010103	NO 2000-3372	20000628
	AU 2000042744	A5	20010104	AU 2000-42744	20000628
	AU 736067	B2	20010726		
	TR 200001956	A2	20010122	TR 2000-200001956	20000628
	HR 2000000436	A1	20010630	HR 2000-436	20000628
	NZ 505454	A	20011221	NZ 2000-505454	20000628
	ZA 2000003282	A	20010102	ZA 2000-3282	20000629
	CN 1280137	A	20010117	CN 2000-107889	20000629
	SG 92717	A1	20021119	SG 2000-3658	20000629
	CN 1515590	A	20040728	CN 2004-10003602	20000629
	DE 10031839	A1	20010201	DE 2000-10031839	20000630
	GB 2353281	A1	20010221	GB 2000-16205	20000630
	GB 2353281	B2	20040609		
	BG 104570	A	20010928	BG 2000-104570	20000630
	IT 2000MI1479	A1	20011231	IT 2000-MI1479	20000630
	IT 1318606	B1	20030827		
	ES 2191511	A1	20030901	ES 2000-1625	20000630
	ES 2191511	B1	20050101		
	GB 2393960	A1	20040414	GB 2004-86	20000630
	GB 2393960	B2	20040804		
	FR 2795734	A1	20010105	FR 2000-8609	20000703
	FR 2795734	B1	20050930		
	JP 2001064300	A2	20010313	JP 2000-201525	20000703
	JP 3727009	B2	20051214		
	BR 2000002276	A	20011211	BR 2000-2276	20000703

	HK 1033328	A1	20050506	HK 2001-104020	20010612
	US 2003120045	A1	20030626	US 2002-293551	20021114
	JP 2004155787	A2	20040603	JP 2003-419520	20031217
PRAI	US 1999-142254P	P	19990702		
	US 1999-150225P	P	19990823		
	US 1999-151548P	P	19990831		
	US 1999-166151P	P	19991117		
	US 2000-604938	A1	20000627		
	GB 2000-16205	A3	20000630		
	JP 2000-201525	A3	20000703		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1064951	ICM	A61K0047-48
	IPCI	A61K0047-48 [ICM,6]
	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0017-00 [I,C]; C07K0017-08 [I,A]
	ECLA	A61K047/48H4P; A61K047/48R; C07K017/08
US 6583272	IPCI	C07K0014-505 [ICM,7]; C07K0017-00 [ICS,7]; A61K0038-17 [ICS,7]; A61K0039-00 [ICS,7]
	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0017-00 [I,C]; C07K0017-08 [I,A]
	NCL	530/397.000; 424/194.100; 424/195.110; 530/350.000
	ECLA	A61K047/48H4P; A61K047/48R; C07K017/08
CA 2310536	IPCI	C07K0014-505 [ICM,7]; A61P0031-00 [ICS,7]; A61K0038-18 [ICS,7]; A61K0047-48 [ICS,7]
	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0017-00 [I,C]; C07K0017-08 [I,A]
NO 2000003372	IPCI	C07K0017-10 [ICM,7]; C07K0014-505 [ICS,7]; A61K0038-18 [ICS,7]; A61K0047-48 [ICS,7]
AU 2000042744	IPCI	C07K0014-575 [ICM,7]; A61K0047-48 [ICS,7]; A61P0035-00 [ICS,7]; A61P0013-12 [ICS,7]
TR 200001956	IPCI	A61K0038-18 [ICM,7]
HR 2000000436	IPCI	A61K0047-48 [ICM,7]
NZ 505454	IPCI	C07K0017-08 [ICM,7]; C07K0014-505 [ICS,7]; A61K0038-22 [ICS,7]
ZA 2000003282	IPCI	A61K [ICM,7]; C07K [ICS,7]; C07H [ICS,7]
CN 1280137	IPCI	C07K0014-505 [ICM,7]; A61K0038-17 [ICS,7]; A61P0013-12 [ICS,7]
SG 92717	IPCI	C07K0014-575 [ICM,7]; A61K0047-48 [ICS,7]; A61P0035-00 [ICS,7]; A61P0013-12 [ICS,7]
CN 1515590	IPCI	C07K0017-02 [ICM,7]; C08G0065-00 [ICS,7]; A61K0038-22 [ICS,7]; A61P0013-12 [ICS,7]; A61P0035-00 [ICS,7]
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	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0017-00 [I,C]; C07K0017-08 [I,A]
	ECLA	A61K047/48H4P; A61K047/48R; C07K017/08
GB 2353281	IPCI	C07K0017-08 [ICM]; A61K0038-17 [ICS]; A61P0007-00 [ICS]; C07K0014-505 [ICS]; C12N0015-12 [ICS]
	ECLA	A61K047/48H4P; A61K047/48R; C07K017/08
BG 104570	IPCI	A61K0038-42 [ICM,7]
IT 2000MI1479	IPCI	A61K0038-00 [ICM]
ES 2191511	IPCI	A61K0047-48 [ICM,5]; C07K0014-505 [ICS,7]; A61K0038-18 [ICS,7]
GB 2393960	IPCI	C07K0017-08 [ICM,7]; A61K0038-17 [ICS,7]; A61P0007-00 [ICS,7]; C07K0014-505 [ICS,7]; C12N0015-12 [ICS,7]
	ECLA	A61K047/48H4P; A61K047/48R; C07K017/08
FR 2795734	IPCI	C07K0014-505 [ICM]; A61K0038-18 [ICS]
	ECLA	A61K047/48H4P; A61K047/48R; C07K017/08
JP 2001064300	IPCI	C07K0014-505 [ICM,7]; A61K0038-22 [ICS,7]; A61K0047-48

		[ICS,7]; A61P0007-06 [ICS,7]; A61P0013-12 [ICS,7]; A61P0035-00 [ICS,7]; C07K0001-107 [ICS,7]; C07K0014-59 [ICS,7]; C07K0019-00 [ICS,7]; C07K0017-08 [ICS,7]
BR 2000002276	IPCI	A61K0038-42 [ICM,7]; A61P0007-06 [ICS,7]
HK 1033328	IPCI	C07K [ICM,7]; A61K [ICS,7]; A61P [ICS,7]
US 2003120045	IPCI	C07K0014-575 [ICM,7]
	IPCR	A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0017-00 [I,C]; C07K0017-08 [I,A]
	NCL	530/397.000
	ECLA	A61K047/48H4P; A61K047/48R; C07K017/08
JP 2004155787	IPCI	C07K0014-505 [ICM,7]; A61K0047-48 [ICS,7]; A61P0007-06 [ICS,7]; A61P0013-12 [ICS,7]; A61P0031-18 [ICS,7]; A61P0035-00 [ICS,7]
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AB The present invention refers to conjugates of **erythropoietin** with **poly(ethylene glycol)** comprising an **erythropoietin** glycoprotein having at least one free amino group and having the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and selected from the group consisting of human **erythropoietin** and analogs thereof which have sequence of human **erythropoietin** modified by the addition of 1-6 glycosylation sites or a rearrangement of at least one glycosylation site; said glycoprotein being covalently linked to "n" **poly(ethylene glycol)** groups of the formula -CO-(CH2)x(OCH2CH2)m-OR with the carbonyl of each **poly(ethylene glycol)** group forming an amide bond with one of said amino groups; wherein R is lower alkyl; x = 2 or 4; m = 450-900; n = 1-3; and n and m are chosen so that the mol. weight of the conjugate minus the **erythropoietin** glycoprotein is 20-100 kDa.

ST **erythropoietin** deriv conjugate **polyethylene glycol** sequence

IT AIDS (disease)
Chemotherapy
(anemia in; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT Anemia (disease)
Bone marrow
Erythrocyte
Erythropoiesis
Hematopoiesis
Protein sequences
Reticulocyte
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT Glycoproteins, general, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT Kidney, disease
(failure, chronic, anemia in; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **Polyoxyalkylenes, biological studies**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glycoprotein conjugates; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT Glycosylation
(sites for; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT 66090-83-3P **134547-95-8P**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **11096-26-7D**, **Erythropoietin, polyethylene glycol** conjugates **221039-34-5**, **Erythropoietin** (human)
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **25322-68-3D**, **Polyethylene glycol**, glycoprotein conjugates
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **96024-34-9**, **Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: PRP (Properties)
(unclaimed protein sequence; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **134547-95-8P**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

RN 134547-95-8 HCAPLUS
CN 1-165-Erythropoietin (human clone λHEPOFL13 protein moiety reduced) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

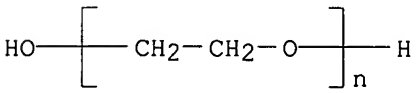
IT **11096-26-7D**, **Erythropoietin, polyethylene glycol** conjugates **221039-34-5**, **Erythropoietin** (human)
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

RN 11096-26-7 HCAPLUS
CN Erythropoietin (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 221039-34-5 HCAPLUS
CN Erythropoietin (human) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **25322-68-3D, Polyethylene glycol**, glycoprotein conjugates
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)
RN 25322-68-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IT **96024-34-9, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: PRP (Properties)
(unclaimed protein sequence; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)
RN 96024-34-9 HCAPLUS
CN Erythropoietin (human clone λHEPOFL13 protein moiety reduced) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

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L112 ANSWER 1 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:638629 HCAPLUS
DN 143:127856
TI Biosynthesis of proteins with an N-terminal cysteine contributing a free thiol for chemical modification
IN Pool, Chadler; Mills, Juliane; Cunningham, Mark
PA Centocor, Inc., USA
SO PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005065239	A2	20050721	WO 2004-US43081	20041223 <--
	WO 2005065239	A3	20051124		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, SM
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2005170457 A1 20050804 US 2004-21516 20041223 <--
PRAI US 2003-533617P P 20031231 <--
AB Modified proteins having an N-terminal cysteine that present a free thiol group that can be used to **conjugate** the protein with agents such as water soluble polymers is described. The protein may be manufactured by expression of the gene for the corresponding protein in a suitable host. The N-terminal cysteine may be introduced by manufacturing the protein with a signal peptide that is cleaved during export to release a protein with an N-terminal cysteine. In particular, the invention relates to **erythropoietin** derivs. having altered biochem., physiochem. and pharmacokinetic properties. These derivs. retain their biol. and therapeutic activities, e.g for the treatment of anemia, because the N-terminal region of the protein is not involved in receptor binding. They have an N-terminal cysteine prior to the known N-terminal amino acid of the mature form of the protein that can be used to **conjugate** water-soluble polymers, such as **polyethylene glycol**, to the protein. In addition, the polymer may be **conjugated** to another peptide that increases the serum half-life of the **conjugate**. Use of the signal peptide of human growth hormone to manufacture human **erythropoietin** with an N-terminal cysteine using HEK-293E cells is demonstrated. The protein had the predicted N-terminal peptide and stimulated proliferation of UT-7 cells. This **erythropoietin** derivative could be readily **conjugated** with **polyethylene glycol** using maleimide-**PEG**. The native form of the protein was refractory to **PEGylation**.
IT **858997-95-2DP**, N-terminal modification derivs., **conjugates** with **polyethylene glycol** **858997-96-3DP**, N-terminal modification derivs., **conjugates** with **polyethylene glycol**
RL: BPN (Biosynthetic preparation); PKT (Pharmacokinetics); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; biosynthesis of proteins with N-terminal cysteine contributing free thiol for chemical modification)
IT **11096-26-7DP**, **Erythropoietin**, N-terminal modification derivs., **conjugates** with **polyethylene glycol**
RL: BPN (Biosynthetic preparation); PKT (Pharmacokinetics); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(biosynthesis of proteins with N-terminal cysteine contributing free thiol for chemical modification)
IT **25322-68-3DP**, alkyl derivs., **conjugates** with **erythropoietin** derivs. **25322-68-3DP**, **Polyethylene glycol**, **conjugates** with **erythropoietin** derivs.
RL: PKT (Pharmacokinetics); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(biosynthesis of proteins with N-terminal cysteine contributing free thiol for chemical modification)

L112 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:612448 HCAPLUS
DN 143:110178
TI Tissue regeneration method using hematopoietic growth factors
IN Bader, Augustinus
PA Bionethos Holding G.m.b.H., Germany
SO PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DT Patent
LA German

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005063965	A1	20050714	WO 2004-EP14839	20041230 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1550715	A1	20050706	EP 2003-29961	20031230 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	DE 10361813	A1	20050908	DE 2003-10361813	20031230 <--
PRAI	DE 2003-10361813	A	20031230 <--		
	EP 2003-29961	A	20031230 <--		
	DE 2002-10234742	A	20020730 <--		

AB The invention relates to the use of hematopoietic growth factors, the **erythropoietin** (**EPO**) and thrombopoietin (TPO) thereof, or the derivs., analogs, or parts thereof for promoting structural tissue regeneration. Traumatized tissues, e.g liver are treated in vivo and in vitro; growth factor mimetic peptides EMP or DMP, **PEG-conjugate** growth factors and addnl. hormones are applied. Addnl. hormones can be added. A list of other tissues that can be regenerated using hematopoietic growth factors is given.

IT **11096-26-7, Erythropoietin 25322-68-3D, PEG, conjugates** of growth factors **209810-58-2**, NESP
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(tissue regeneration method using hematopoietic growth factors)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Atala, A	2002			US 6479064 B1	HCAPLUS
Atala, A	2003			US 2003096407 A1	
Bader, A	2003			WO 2004001023 A	HCAPLUS
Krupczak-Hollis, K	2002			US 2002187936 A1	HCAPLUS
Neurospheres Holdings L	1999			WO 9921966 A	HCAPLUS
Schwartz, G	2001			WO 0113936 A	HCAPLUS
Zen Bio Inc	2001			EP 1077254 A	HCAPLUS

L112 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2005:570820** HCAPLUS
DN 143:72269
TI Use of **erythropoietin** or **erythropoietin conjugates** in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases
IN Klima, Horst; Lehmann, Paul; Roeddiger, Ralf; Walter-Matsui, Ruth
PA F. Hoffmann-La Roche A.-G., Switz.
SO PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005058347	A1	20050630	WO 2004-EP14105	20041210 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2005181986	A1	20050818	US 2004-13560	20041216 <--
PRAI	EP 2003-104832	A	20031219 <--		

AB The present invention relates to the use of **erythropoietin** for the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases.

IT **855810-15-0, erythropoietin** (human) **855810-16-1, erythropoietin** (human)
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; use of **erythropoietin** or **erythropoietin conjugates** in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)

IT **11096-26-7, Erythropoietin 11096-26-7D, Erythropoietin, conjugated, pegylated, glycosylated 25322-68-3D, Poly(ethylene glycol), erythropoietin conjugate 113427-24-0, Epoetin** alfa **122312-54-3,** Recormon **209810-58-2, Darbepoetin** alfa
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(use of **erythropoietin** or **erythropoietin conjugates** in the treatment of disturbances of iron distribution in chronic inflammatory intestinal diseases)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Dohil, R	1998	132	155	JOURNAL OF PEDIATRIC	HCAPLUS
F Hoffmann-La Roche Ag	2001			WO 0102017 A	HCAPLUS
F Hoffmann-La Roche Ag	2004			WO 2004019972 A	HCAPLUS
F Hoffmann-La Roche Ag	2004			WO 2004047858 A	HCAPLUS
Gasche, C	1999	60	262	DIGESTION	HCAPLUS
Gasche, C	1994	39	1930	DIGESTIVE DISEASES A	MEDLINE
Kishore, B	2004			WO 2004091495 A	HCAPLUS
Schreiber, S	1996	334	619	NEW ENGLAND JOURNAL	HCAPLUS
Wilson, A	2004	116	44	AMERICAN JOURNAL OF	

L112 ANSWER 4 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1080857 HCAPLUS
DN 142:62604
TI Formation of novel **erythropoietin conjugates** using transglutaminase
IN Pool, Chadler T.

PA Centocor, Inc., USA
SO PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004108667	A2	20041216	WO 2004-US16670	20040527 <--
	WO 2004108667	A3	20050324		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	US 2004266690	A1	20041230	US 2004-854854	20040527 <--
	US 6995245	B2	20060207		
PRAI	US 2003-475074P	P	20030530 <--		

AB The invention provides biol. active **erythropoietin** (**EPO**) **conjugate** compns. wherein a transglutaminase reaction is employed to covalently and site specifically **conjugate** the **EPO** mol. to a non-antigenic hydrophilic polymer that can also be covalently linked to an organic mol. either of which modification increases the circulating serum half-life of the composition Compds. **conjugated** to human **erythropoietin** using guinea pig liver transglutaminase include cadaverine derivs., a glutamylglycine derivative, and cadaverine-**PEG** derivs.

IT **808198-46-1P 808198-47-2DP, conjugates** with **erythropoietin**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(formation of **erythropoietin conjugates** using transglutaminase)

IT **11096-26-7, Erythropoietin 11096-26-7D, Erythropoietin, conjugates** with polyamine derivs. **174569-25-6 808198-46-1D, conjugates** with **erythropoietin 808198-47-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(formation of **erythropoietin conjugates** using transglutaminase)

L112 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1019925 HCAPLUS
DN 142:16855
TI Peptides that bind to the **erythropoietin** receptor, and their therapeutic use
IN Yin, Kevin; Holmes, Christopher; Lalonde, Guy; Balu, Palani; Schatz, Peter J.; Tumelty, David
PA Affymax, Inc., USA
SO PCT Int. Appl., 83 pp.
CODEN: PIXXD2
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004101611	A2	20041125	WO 2004-US14886	20040512 <--
	WO 2004101611	A3	20050120		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2525497	AA	20041125	CA 2004-2525497	20040512 <--
	EP 1625156	A2	20060215	EP 2004-760995	20040512 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
PRAI	US 2003-470245P	P	20030512 <--		
	WO 2004-US14886	W	20040512		

OS MARPAT 142:16855

AB The invention discloses peptide compds. that are agonists of the **erythropoietin** receptor. The invention also discloses therapeutic methods using such peptide compds. to treat disorders associated with insufficient or defective red blood cell production Pharmaceutical compns. which comprise the peptide compds. of the invention are also provided.

IT **11096-26-7, Erythropoietin**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(peptides binding to **erythropoietin** receptor, and therapeutic use)

IT **25322-68-3D, Polyethylene glycol**, peptide **conjugates**
RL: PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(peptides binding to **erythropoietin** receptor, and therapeutic use)

L112 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1016073 HCAPLUS
DN 142:749
TI Novel peptides that bind to the **erythropoietin** receptor
IN Yin, Kevin Q.; Holmes, Chris; Lalonde, Guy; Balu, Palani; Schatz, Peter; Tumelty, David; Zemede, Gemete H.
PA Affymax, Inc., USA
SO PCT Int. Appl., 117 pp.
CODEN: PIXXD2
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004101606	A2	20041125	WO 2004-US14889	20040512 <--
	WO 2004101606	A3	20050922		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,				

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2525568	AA	20041125	CA 2004-2525568	20040512 <--
US 2005137329	A1	20050623	US 2004-844968	20040512 <--
EP 1629007	A2	20060301	EP 2004-760998	20040512 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
US 2006040858	A1	20060223	US 2005-261157	20051027 <--
PRAI US 2003-469993P	P	20030512 <--		
US 2003-470244P	P	20030512 <--		
US 2004-844968	A1	20040512		
WO 2004-US14889	W	20040512		

AB The present invention relates to peptide compds. that are agonists of the **erythropoietin** receptor (**EPO**-R). The invention also relates to therapeutic methods using such peptide compds. to treat disorders associated with insufficient or defective red blood cell production Pharmaceutical compns., which comprise the peptide compds. of the invention, are also provided.

IT **11096-26-7, Erythropoietin**
RL: BSU (Biological study, unclassified); BIOL (Biological study) (deficiency; novel peptides activating **erythropoietin** receptor to treat disorders associated with defective red blood cell production)

IT **174569-25-6D**, peptide **conjugate** derivs.
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(novel peptides activating **erythropoietin** receptor to treat disorders associated with defective red blood cell production)

IT **25322-68-3, PEG**
RL: RCT (Reactant); RACT (Reactant or reagent)
(novel peptides activating **erythropoietin** receptor to treat disorders associated with defective red blood cell production)

L112 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2004:996201** HCAPLUS
DN 141:422003
TI Cell-free oligosaccharide remodeling and glycoPEGylation methods and the proteins/peptides produced
IN De Frees, Shawn; Zopf, David; Bayer, Robert; Bowe, Caryn; Hakes, David; Chen, Xi
PA Neose Technologies, Inc., USA
SO PCT Int. Appl., 1024 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 17

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004099231	A2	20041118	WO 2004-US11494	20040409 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,

BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
TD, TG

US 2004043446	A1	20040304	US 2003-411037	20030409	<--
US 2004063911	A1	20040401	US 2003-411026	20030409	<--
US 2004077836	A1	20040422	US 2003-410962	20030409	<--
US 2004082026	A1	20040429	US 2003-411049	20030409	<--
US 2004115168	A1	20040617	US 2003-410930	20030409	<--
US 2004126838	A1	20040701	US 2003-410997	20030409	<--
US 2004132640	A1	20040708	US 2003-411012	20030409	<--
US 2004142856	A1	20040722	US 2003-410913	20030409	<--
US 2005031584	A1	20050210	US 2003-410980	20030409	<--
US 2005100982	A1	20050512	US 2003-410897	20030409	<--
CA 2522345	AA	20041118	CA 2004-2522345	20040409	<--
EP 1615945	A2	20060118	EP 2004-750118	20040409	<--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR

PRAI US 2003-410897	A	20030409	<--	
US 2003-410913	A	20030409	<--	
US 2003-410930	A	20030409	<--	
US 2003-410945	A	20030409	<--	
US 2003-410962	A	20030409	<--	
US 2003-410980	A	20030409	<--	
US 2003-410997	A	20030409	<--	
US 2003-411012	A	20030409	<--	
US 2003-411026	A	20030409	<--	
US 2003-411037	A	20030409	<--	
US 2003-411043	A	20030409	<--	
US 2003-411044	A	20030409	<--	
US 2003-411049	A	20030409	<--	
US 2001-328523P	P	20011010	<--	
US 2001-344692P	P	20011019	<--	
US 2001-334233P	P	20011128	<--	
US 2001-334301P	P	20011128	<--	
US 2002-387292P	P	20020607	<--	
US 2002-391777P	P	20020625	<--	
US 2002-396594P	P	20020717	<--	
US 2002-404249P	P	20020816	<--	
US 2002-407527P	P	20020828	<--	
WO 2002-US32263	A2	20021009	<--	
US 2002-287994	A2	20021105	<--	
US 2003-360770	A2	20030106	<--	
US 2003-438582P	P	20030106	<--	
US 2003-360779	A2	20030219	<--	
US 2003-448381P	P	20030219	<--	
WO 2004-US11494	W	20040409		

AB The invention includes methods and compns. for remodeling a peptide mol., including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide. In vitro methods for addition and/or deletion of sugars to or from a glypeptide mol. are carried out in a manner as to provide a peptide mol. having a specific customized or desired **glycosylation** pattern, preferably including the addition of a modified sugar. The peptide is enzymically treated in vitro by the systematic addition of the appropriate enzymes and substrates. A key feature of the invention therefore is to take a peptide produced by any cell type and generate a core glycan structure on the peptide, following which the glycan structure is then remodeled in vitro to generate a peptide having a **glycosylation** pattern suitable for therapeutic use in a mammal. The blood-circulation half-life of the

selected peptide is extended by **conjugating** the peptide to a synthetic or natural polymer of a size sufficient to retard the filtration of the protein by the glomerulus, as illustrated by **conjugating** **erythropoietin** to albumin via a **polyethylene** **glycol** (**PEG**) linker using a combination of chemical and enzymic modifications.

IT **11096-26-7P, Erythropoietin**
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PAC (Pharmacological activity); PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(cell-free oligosaccharide remodeling and glycoPEGylation methods and the proteins/peptides produced)

IT **25322-68-3, Poly(ethylene glycol)**
RL: BSU (Biological study, unclassified); RCT (Reactant); THU (Therapeutic use); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(cell-free oligosaccharide remodeling and glycoPEGylation methods and the proteins/peptides produced)

IT **125220-94-2 174569-25-6**
RL: RCT (Reactant); RACT (Reactant or reagent)
(cell-free oligosaccharide remodeling and glycoPEGylation methods and the proteins/peptides produced)

L112 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:995718 HCAPLUS
DN 141:416010
TI **Erythropoietin conjugate** compounds with extended half-lives
IN Heavner, George
PA USA
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004229318	A1	20041118	US 2003-439870	20030517 <--
WO 2004106373	A1	20041209	WO 2003-US15750	20030520 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

PRAI US 2003-439870 A 20030517 <--

AB The invention provides biol. active **erythropoietin** (**EPO**) **conjugate** compns. wherein **EPO** is covalently **conjugated** to a non-antigenic hydrophilic polymer covalently linked to an organic mol. that increases the circulating serum half-life of the composition The invention thus relates to **EPO** derivs. described by the formula **EPO**-(X-Y) N where **EPO** is **erythropoietin** or its pharmaceutically acceptable derivs. having biol. properties of causing bone marrow cells to increase production of reticulocytes and red blood cells, X is **PEG** or other water soluble polymers, Y is an organic mol. that increases the circulating half-life of the construct more than the **PEG** alone and N is an integer from 1 to 15. Other mols. may be included between **EPO** and X and

between X and Y to provide the proper functionality for coupling or valency. For example, **erythropoietin** was **conjugated** to DSPE-**PEG** through the alpha amino group of amino acid 1 of **erythropoietin**, and was able to prolong the serum half-life of **erythropoietin** in mice shown by the high hematocrit and Hb levels.

IT **11096-26-7DP, Erythropoietin**, derivs., **conjugates** with **PEG**-DSPE/**PEG**-linoleate
RL: PKT (Pharmacokinetics); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**erythropoietin conjugates** with polymers and orgs. for extended serum half-lives)

IT **11096-26-7, Erythropoietin**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**erythropoietin conjugates** with polymers and orgs. for extended serum half-lives)

IT **25322-68-3D, PEG**, substitutes, **erythropoietin conjugates**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**erythropoietin conjugates** with polymers and orgs. for extended serum half-lives)

L112 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:980108 HCAPLUS
DN 142:175385
TI **Conjugate** of **erythropoietin** and **polyethylene glycol** derivative
IN Lee, In U.; Noh, Gwang; Park, Min Gu
PA Sunbio Inc., S. Korea
SO Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DT Patent
LA Korean
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI KR 2003045416	A	20030611	KR 2001-76132	20011204 <--
PRAI KR 2001-76132		20011204 <--		

AB A **conjugate** of **erythropoietin** (**EPO**) and **polyethylene glycol** derivative is provided to effect enhanced pharmacokinetic profile and pharmacol. property by reducing the immunogenicity of the **EPO** while preventing deterioration in the biol. activity and increasing the remaining time in the body, and to be used for clin. treatment related to erythropoiesis and hematopoiesis for the renal anemia induced by the chronic renal failure or for the anemia induced by the diseases of cancer and AIDS. A **conjugate** is prepared by **pegylating** methoxypolyethylene glycol-propionaldehyde derivative to the alpha-amino group of amino-terminus of **EPO**. The **EPO** is a wild type or recombinant **EPO**. The methoxypolyethylene glycol-propionaldehyde derivative includes at least one of linear methoxypolyethylene glycol-amide-propionaldehyde derivative, linear methoxypolyethylene glycol-urethane-propionaldehyde derivative, pendant **polyethylene glycol**-amide-propionaldehyde derivative, and pendant **polyethylene glycol**-urethane-propionaldehyde derivative The mol. weight of methoxypolyethylene glycol-propionaldehyde derivative is in the range of 1,000-1,000,000.

IT **9004-74-4D**, Methoxypolyethylene glycol, **erythropoietin conjugates 11096-26-7D, Erythropoietin, polyethylene glycol conjugates**
RL: PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological

study); USES (Uses)
(erythropoietin-polyethylene glycol conjugates for treatment related to erythropoiesis and hematopoiesis for renal anemia)

L112 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:550721 HCAPLUS
DN 141:85134
TI Cell-free, in vitro method for regioselective, enzymic glycoPEGylation of peptides
IN Defrees, Shawn; Zopf, David; Bayer, Robert; Bowe, Caryn; Hakes, David; Chen, Xi
PA Neose Technologies, Inc., USA
SO U.S. Pat. Appl. Publ., 752 pp., Cont.-in-part of Appl. No. PCT/US02/32263. CODEN: USXXCO
DT Patent
LA English
FAN.CNT 17

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004132640	A1	20040708	US 2003-411012	20030409 <--
	WO 2003031464	A2	20030417	WO 2002-US32263	20021009 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ				
	CA 2522345	AA	20041118	CA 2004-2522345	20040409 <--
	WO 2004099231	A2	20041118	WO 2004-US11494	20040409 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1615945	A2	20060118	EP 2004-750118	20040409 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
PRAI	US 2002-387292P	P	20020607 <--		
	US 2002-391777P	P	20020625 <--		
	US 2002-396594P	P	20020717 <--		
	US 2002-404249P	P	20020816 <--		
	US 2002-407527P	P	20020828 <--		
	WO 2002-US32263	A2	20021009 <--		
	US 2001-328523P	P	20011010 <--		
	US 2001-344692P	P	20011019 <--		
	US 2001-334233P	P	20011128 <--		
	US 2001-334301P	P	20011128 <--		
	US 2003-410897	A	20030409 <--		
	US 2003-410913	A	20030409 <--		

US 2003-410930	A	20030409	<--
US 2003-410945	A	20030409	<--
US 2003-410962	A	20030409	<--
US 2003-410980	A	20030409	<--
US 2003-410997	A	20030409	<--
US 2003-411012	A	20030409	<--
US 2003-411026	A	20030409	<--
US 2003-411037	A	20030409	<--
US 2003-411043	A	20030409	<--
US 2003-411044	A	20030409	<--
US 2003-411049	A	20030409	<--
WO 2004-US11494	W	20040409	

AB A method is disclosed for remodeling a peptide, including the addition or deletion, if necessary, of one or more glycosyl groups of the peptide, then enzyme-mediated attachment of a **PEGylated** sugar. Thus, **erythropoietin** produced in a baculovirus/Sf9 cell system was treated with UDP-GlcNac and glucosaminyltransferase, with UDP-galactose and galactosyltransferase, then with sialyltransferase and **PEGylated** CMP-sialic acid. **Erythropoietin** containing 1 kDa **PEG** moieties displayed bioactivity comparable to that of the non-**PEGylated** hormone. Other proteins were **PEGylated** in a similar manner. One such protein, FSH, displayed improved pharmacokinetics (reduced blood clearance) in rats.

IT **11096-26-7DP, Erythropoietin**, glycoPEGylated
25322-68-3DP, PEG, conjugates with glycopeptides
RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(cell-free, in vitro method for regioselective, enzymic glycoPEGylation of peptides)

L112 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2004:333839** HCAPLUS
DN 140:352406
TI **Erythropoietin glycosylation** and the modification of protein structure and activity for therapeutic use
IN De Frees, Shawn; Zopf, David; Bayer, Robert; Bowe, Caryn; Hakes, David; Chen, Xi
PA Neose Technologies, Inc., USA
SO PCT Int. Appl., 1018 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 17

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004033651	A2	20040422	WO 2003-US31974	20031008 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
WO 2003031464	A2	20030417	WO 2002-US32263	20021009 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,				

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF,
CG, CI, CM, GA, GN, GQ

US 2004137557	A1	20040715	US 2002-287994	20021105	<--
CA 2501832	AA	20040422	CA 2003-2501832	20031008	<--
BR 2003015178	A	20050816	BR 2003-15178	20031008	<--
EP 1581622	A2	20051005	EP 2003-777555	20031008	<--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

PRAI WO 2002-US32263	A	20021009	<--
US 2002-287994	A	20021105	<--
US 2003-360770	A	20030106	<--
US 2003-360779	A	20030219	<--
US 2003-410945	A	20030409	<--
US 2001-328523P	P	20011010	<--
US 2001-344692P	P	20011019	<--
US 2001-334233P	P	20011128	<--
US 2001-334301P	P	20011128	<--
US 2002-387292P	P	20020607	<--
US 2002-391777P	P	20020625	<--
US 2002-396594P	P	20020717	<--
US 2002-404249P	P	20020816	<--
US 2002-407527P	P	20020828	<--
WO 2003-US31974	W	20031008	<--

AB The invention includes methods and compns. for remodeling a peptide mol., including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide. Methods of modifying the structure and properties of **erythropoietin** by introduction of glycosidation are described. The method uses substitution variants of **erythropoietin** to introduce sites that can be **glycosylated** enzymically. The primary **glycosylation** may then be used to add further sugar residues. The glycosidation, which may include the introduction of N-acetylglucose, N-acetylgalactose, and sialic acid and mannosyl and fucosyl oligosaccharides. The carbohydrate moiety may in turn be modified by **PEGylation**. A biantennary glycosidated derivative of **Epogen** had 146% of the activity of the unmodified protein. The **glycosylated** proteins had longer serum half-lives than the unmodified protein and showed longer term effects on blood Hb levels.

IT **681860-67-3DP**, substitution derivs., **glycosylated**, **PEGylated**
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; **erythropoietin glycosylation** and modification of protein structure and activity for therapeutic use)

IT **11096-26-7DP**, **Erythropoietin**, **glycosylated** derivs. **25322-68-3DP**, **Polyethylene glycol**, reaction products with **glycosylated erythropoietin**
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**erythropoietin glycosylation** and modification of protein structure and activity for therapeutic use)

IT **113427-24-0DP**, **Epogen**, **glycosylated** derivs.
RL: PKT (Pharmacokinetics); PNU (Preparation, unclassified); BIOL (Biological study); PREP (Preparation)

(preparation and pharmacokinetics of; **erythropoietin glycosylation** and modification of protein structure and activity for therapeutic use)

IT **125220-94-2 174569-25-6**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions of; **erythropoietin glycosylation** and modification of protein structure and activity for therapeutic use)

L112 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:532548 HCAPLUS
DN 139:95808
TI Polypeptide-polymer **conjugates** exhibiting **erythropoietin** for therapeutic use
IN Andersen, Kim Vilbour
PA Maxygen APS, Den.; Maxygen Holdings Ltd.
SO PCT Int. Appl., 62 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003055526	A2	20030710	WO 2002-DK871	20021218 <--
	WO 2003055526	A3	20031211		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002351746	A1	20030715	AU 2002-351746	20021218 <--
PRAI	DK 2001-1953	A	20011221 <--		
	US 2001-343501P	P	20011221 <--		
	WO 2002-DK871	W	20021218 <--		

AB The invention relates to polypeptide **conjugates** exhibiting **erythropoietin** (**EPO**) activity, comprising at least one polymer mol., preferably **polyethylene glycol**, covalently attached to an attachment site of a polypeptide, e.g. a lysine or cysteine residue or a carbohydrate chain. More specifically, the polypeptide exhibiting **EPO** activity has an amino acid sequence that differs from the amino acid sequence of human **EPO** in at least one position. Use of the polypeptide **conjugates** in medical treatment and in the preparation of pharmaceuticals is also disclosed.

IT **556878-06-9D**, **erythropoietin** (human), homologs, **conjugated** to polymers
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amino acid sequence; polypeptide-polymer **conjugates** exhibiting **erythropoietin** activity for therapeutic use in conditions characterized by defective red blood cell production)

IT **11096-26-7D**, **EPO**, homologs, **conjugated** to polymers **25322-68-3D**, **Polyethylene glycol**, **erythropoietin** homolog **conjugates**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polypeptide-polymer **conjugates** exhibiting

erythropoietin activity for therapeutic use in conditions characterized by defective red blood cell production)

L112 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:511174 HCAPLUS
DN 139:90456
TI Aqueous sustained-release formulations of **erythropoietin**
IN Sharma, Basant; Jin, Renzhe; Rudolph, Sunitha; Cheung, Wing K.; Begum, Selima; Kelley, Marian
PA Ortho-Mcneil Pharmaceutical, Inc., USA
SO PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003053471	A1	20030703	WO 2002-US36300	20021025 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003148938	A1	20030807	US 2001-37369	20011107 <--
	US 6818613	B2	20041116		
	CA 2465890	AA	20030703	CA 2002-2465890	20021025 <--
	AU 2002343666	A1	20030709	AU 2002-343666	20021025 <--
	EP 1441771	A1	20040804	EP 2002-780626	20021025 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	BR 2002013992	A	20040831	BR 2002-13992	20021025 <--
	JP 2005514394	T2	20050519	JP 2003-554227	20021025 <--
	US 2003181361	A1	20030925	US 2003-403115	20030331 <--
	US 2005164927	A1	20050728	US 2004-920803	20040818 <--
PRAI	US 2001-37369	A	20011107 <--		
	WO 2002-US36300	W	20021025 <--		

AB The present invention is directed to sustained-release pharmaceutical formulations of therapeutic proteins containing carboxymethyl ether cellulose polymer . Formulations of **erythropoietin** containing Na CM cellulose had superior pharmacokinetic properties compared to the com. **Eprex** .

IT **11096-26-7, Erythropoietin**
RL: PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(aqueous sustained-release formulations of **erythropoietin**)

IT **11096-26-7D, Erythropoietin, conjugates** with **PEG 25322-68-3D, Peg, conjugates** with **erythropoietin 113427-24-0, Epoetin** alfa **148363-16-0, Epoetin** omega **209810-58-2, Darbepoetin** alfa
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(aqueous sustained-release formulations of **erythropoietin**)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File

Alkermes Inc	1997			WO 9707788 A	HCAPLUS
Amgen Boulder Inc	1997			WO 9728828 A	HCAPLUS
Cheung, W	2001	57	411	EUROPEAN JOURNAL OF	HCAPLUS
Frimann, B	1983			WO 8301198 A	HCAPLUS
Ortho McNeil Pharm Inc	2000			WO 0061169 A	HCAPLUS
Scios Inc	2000			WO 0013710 A	HCAPLUS
Troxel, T	1980	51	652	JOURNAL OF ANIMAL SC	HCAPLUS

L112 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2003:282607** HCAPLUS
DN 138:298131
TI **PEGylated** and **diglycosylated erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis
IN Tischer, Wilhelm
PA F. Hoffmann-La Roche Ag, Switz.
SO PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003029291	A2	20030410	WO 2002-EP10556	20020920 <--
	WO 2003029291	A3	20030724		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003077753	A1	20030424	US 2002-241356	20020911 <--
	US 6930086	B2	20050816		
	CA 2460489	AA	20030410	CA 2002-2460489	20020920 <--
	EP 1432802	A2	20040630	EP 2002-777160	20020920 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	CN 1558952	A	20041229	CN 2002-818752	20020920 <--
	JP 2005509609	T2	20050414	JP 2003-532536	20020920 <--
PRAI	EP 2001-122555	A	20010925 <--		
	WO 2002-EP10556	W	20020920 <--		

AB The invention provides a new class of **EPO** muteins with improved pharmaceutical properties. The **EPO** muteins according to the invention have the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells. The invention provides an **erythropoietin** mutein which has retained the potential N-**glycosylation** sites at Asn24, Asn38, Asn83, is N-**glycosylated** at Asn38 and Asn83 but is not N-**glycosylated** at Asn24 and is preferably linked at the N-terminal amino group and/or the ε-amino group of Lys20 to **poly(ethylene glycol)** group(s) (**PEG**), preferably to alkoxypoly(ethylene glycol) group(s), more preferably to lower methoxypoly(ethylene glycol) group(s). The muteins of this invention have the same uses as **EPO**. In particular, the muteins of this invention are useful to treat patients by stimulating the division and differentiation of committed erythroid progenitors in the bone marrow.

The present invention also includes a method for the treatment of anemia in humans and the use of the muteins for the manufacturing of a pharmaceutical agent preferably for such treatment. The present invention also includes a method for preparing **erythropoietin** muteins according to the invention, which comprises the production of a **glycosylated EPO** fragment consisting of the amino acids 26-165-(**EPO** 26-165) and subsequent fusion of said fragment with a **nonglycosylated** but preferably **PEGylated EPO** fragment consisting of the amino acids 1-28 (**EPO** 1-28).

IT **510776-46-2DP**, muteins **510776-47-3DP**, muteins
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; preparation of **PEGylated** and **diglycosylated erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **510776-48-4**, 29-165-**erythropoietin** (human)
RL: RCT (Reactant); RACT (Reactant or reagent)
(amino acid sequence; preparation of **PEGylated** and **diglycosylated erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **11096-26-7DP**, **Erythropoietin**, muteins
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of **PEGylated** and **diglycosylated erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **92451-01-9DP**, **Erythropoietin** peptide **conjugates**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of **PEGylated** and **diglycosylated erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **67665-18-3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of **PEGylated** and **diglycosylated erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

IT **92451-01-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of **PEGylated** and **diglycosylated erythropoietin** with improved pharmaceutical properties in induction of erythropoiesis)

L112 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2002:487418** HCAPLUS
DN 137:68127
TI **Erythropoietin conjugates**
IN Burg, Josef; Engel, Alfred; Franze, Reinhard; Hilger, Bernd; Schurig, Hartmut Ernst; Tischer, Wilhelm; Wozny, Manfred
PA F. Hoffmann-La Roche Ag, Switz.
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	WO 2002049673	A2	20020627	WO 2001-EP14434	20011208 <--
	WO 2002049673	A3	20030123		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2431964	AA	20020627	CA 2001-2431964	20011208 <--
	AU 2002033230	A5	20020701	AU 2002-33230	20011208 <--
	EP 1345628	A2	20030924	EP 2001-984811	20011208 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	BR 2001016381	A	20040225	BR 2001-16381	20011208 <--
	JP 2004525097	T2	20040819	JP 2002-551010	20011208 <--
	CN 1527726	A	20040908	CN 2001-820609	20011208 <--
	US 2002115833	A1	20020822	US 2001-14363	20011211 <--
	ZA 2003004647	A	20040913	ZA 2003-4647	20030613 <--
PRAI	EP 2000-127891	A	20001220 <--		
	WO 2001-EP14434	W	20011208 <--		

AB The present invention refers to **conjugates** of **erythropoietin** with **poly(ethylene glycol)** comprising an **erythropoietin** glycoprotein having an N-terminal α-amino group and having the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and selected from the group consisting of human **erythropoietin** and analogs thereof which have the sequence of human **erythropoietin** modified by the addition of from 1 to 6 **glycosylation** sites or a rearrangement of at least one **glycosylation** site; said glycoprotein being covalently linked to one **poly(ethylene glycol)** group of the formula -CO-(CH2)x-(OCH2CH2)m-OR with the -CO of the **poly(ethylene glycol)** group forming an amide bond with said N-terminal α-amino group; wherein R is lower alkyl; x is 2 or 3; and m is from about 450 to about 1350.

IT **11096-26-7DP, Erythropoietin, conjugates**
RL: PNU (Preparation, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**glycosylation** site-augmented human **erythropoietin** **conjugates** with **PEG**)

IT **11096-26-7, Erythropoietin 25322-68-3D, Polyethylene glycol, erythropoietin conjugates**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**glycosylation** site-augmented human **erythropoietin** **conjugates** with **PEG**)

L112 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:314990 HCAPLUS
DN 136:330575
TI **PEG**-modified **erythropoietin** having long-lasting effect
IN Nakamura, Teruo; Sekimori, Yasuo; Machida, Minoru; Kawata, Hiromitsu; Miyamoto, Hajime
PA Chugai Seiyaku Kabushiki Kaisha, Japan
SO PCT Int. Appl., 46 pp.
CODEN: PIXXD2

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002032957	A1	20020425	WO 2001-JP8539	20010928 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2001090312	A5	20020429	AU 2001-90312	20010928 <--
	EP 1333036	A1	20030806	EP 2001-970285	20010928 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2004082765	A1	20040429	US 2003-399254	20030416 <--
PRAI	JP 2000-315421	A	20001016 <--		
	WO 2001-JP8539	W	20010928 <--		

AB Disclosed is a **polyethylene glycol**-modified **erythropoietin** (**PEG**-modified **EPO**) obtained by chemical modifying the lysine residue at the 52-position of natural **erythropoietin** (natural **EPO**) with **polyethylene glycol**. To enhance the long-lasting drug effect of **EPO** without damaging the physiol. activity of **EPO** which is a sugar chain-rich glycoprotein, it has been required to develop a **PEG**-modified **EPO** having an extremely high long-lasting drug effect by introducing **PEG** into a controlled binding site at a controlled number of binding mols. The above-described **PEG**-modified **EPO** shows a high long-lasting drug effect, thereby solving these problems. A recombinant human **EPO** was reacted with methoxy **polyethylene glycol** succinimidyl propionic acid ester (mPEG-SPA, 20 kDa) to obtain a mono-mPEG-**EPO**, and tested for its long-lasting hematopoietic effect in rats.

IT **11096-26-7DP**, **Erythropoietin**, reaction products with methoxy **polyethylene glycol** derivs.
174569-25-6DP, reaction products with **erythropoietin**
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**PEG**-modified **erythropoietin** having long-lasting effect)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Amgen Inc	1997			US 5824784 A	HCAPLUS
Amgen Inc	1997			DE 69509628 E	
Amgen Inc	1997			EP 733067 A1	HCAPLUS
Amgen Inc	1997			JP 925298 A	
Amgen Inc	1997			WO 9611953 A1	HCAPLUS
Gray, S	1990			JP 02502646 A	
Gray, S	1990			EP 355142 A	HCAPLUS
Gray, S	1990			US 4904584 A	HCAPLUS
Gray, S	1990			WO 8905824 A	HCAPLUS
Gray, S	1990			AU 8929111 A	HCAPLUS
Kirin Amujien Inc	1990			JP 29900 A	

Nakamura, T	1996		JP 08527463 A	
Nakamura, T	1996		US 5977310 A	HCAPLUS
Nakamura, T	1996		EP 816381 A1	HCAPLUS
Nakamura, T	1996		WO 9628475 A1	HCAPLUS

L112 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2001:870781** HCAPLUS
DN 136:147247
TI Online size-exclusion high-performance liquid chromatography light scattering and differential refractometry methods to determine degree of polymer **conjugation** to proteins and protein-protein or protein-ligand association states
AU Kendrick, Brent S.; Kerwin, Bruce A.; Chang, Byeong S.; Philo, John S.
CS Department of Pharmaceutics, Amgen, Inc., Thousand Oaks, CA, USA
SO Analytical Biochemistry (**2001**), 299(2), 136-146
CODEN: ANBCA2; ISSN: 0003-2697
PB Academic Press
DT Journal
LA English
AB Characterizing the solution structure of protein-polymer **conjugates** and protein-ligand interactions is important in fields such as biotechnol. and biochem. Size-exclusion high-performance liquid chromatog. with online classical light scattering (LS), refractive index (RI), and UV detection offers a powerful tool in such characterization. Novel methods are presented utilizing LS, RI, and UV signals to rapidly determine the degree of **conjugation** and the mol. mass of the protein **conjugate**. Baseline resolution of the chromatog. peaks is not required; peaks need only be sufficiently separated to represent relatively pure fractions. An improved technique for determining the polypeptide-only mass of protein **conjugates** is also described. These techniques are applied to determining the degree of **erythropoietin glycosylation**, the degree of **polyethylene glycol conjugation** to RNase A and brain-derived neurotrophic factor, and the solution association states of these mols. Calibration methods for the RI, UV, and LS detectors will also be addressed, as well as online methods to determine protein extinction coeffs. and dn/dc values both **unconjugated** and **conjugated** protein mols. (c) 2001 Academic Press.
IT **11096-26-7, Erythropoietin 25322-68-3, Polyethylene glycol**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(online size-exclusion high-performance liquid chromatog. light scattering and differential refractometry methods to determine degree of polymer **conjugation** to proteins and protein-protein or protein-ligand association states)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Davis, J	1987	26	2633	Biochemistry	HCAPLUS
Eisenberg, H	1992	58	113	Biochem Soc Symp	MEDLINE
Eisenberg, H	1977	16	2773	Biopolymers	HCAPLUS
Fairman, R	1999	270	286	Anal Biochem	HCAPLUS
Hayashi, Y	1989	172	514	Methods Enzymol	HCAPLUS
Hokke, C	1995	228	981	Eur J Biochem	HCAPLUS
Kato, A	1992	1159	22	Biochim Biophys Acta	HCAPLUS
Kunitani, M	1991	588	125	J Chromatogr	HCAPLUS
Kunitani-M, K	1993	632	19	J Chromatogr	
Maezawa, S	1983	747	291	Biochim Biophys Acta	HCAPLUS
McMeekin, T	1962	7	151	Biochem Biophys Res	HCAPLUS

Pace, C	1995	4	2411	Protein Sci	HCAPLUS
Philo, J	1993	32	10812	Biochemistry	HCAPLUS
Philo, J	1996	35	1681	Biochemistry	HCAPLUS
Radziejewski, C	1992	31	4431	Biochemistry	HCAPLUS
Rush, R	1995	67	1442	Anal Chem	HCAPLUS
Shire, S	1994		261	Modern Analytical Ul	HCAPLUS
Takagi, T	1987	101	805	J Biochem (Tokyo)	HCAPLUS
Watanabe, Y	1991	110	40	J Biochem (Tokyo)	HCAPLUS
Wen, J	1996	240	155	Anal Biochem	HCAPLUS
Wyatt, P	1993	272	1	Anal Chim Acta	HCAPLUS
Xie, G	1997	6	211	Protein Sci	HCAPLUS

L112 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2001:850963** HCAPLUS
DN 136:11065
TI New pharmaceutical composition
IN Papadimitriou, Apollon
PA F. Hoffmann-La Roche A.-G., Switz.
SO PCT Int. Appl., 64 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001087329	A1	20011122	WO 2001-EP5187	20010508 <--
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CO, CU, CZ, DE, DK, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2408685	AA	20011122	CA 2001-2408685	20010508 <--
	BR 2001010914	A	20030211	BR 2001-10914	20010508 <--
	EP 1311285	A2	20030521	EP 2001-943331	20010508 <--
	EP 1311285	B1	20050323		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003533487	T2	20031111	JP 2001-583796	20010508 <--
	NZ 522030	A	20041126	NZ 2001-522030	20010508 <--
	AT 291436	E	20050415	AT 2001-943331	20010508 <--
	EP 1525889	A1	20050427	EP 2005-984	20010508 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, CY, TR				
	PT 1311285	T	20050630	PT 2001-943331	20010508 <--
	ES 2237574	T3	20050801	ES 2001-1943331	20010508 <--
	US 2002037841	A1	20020328	US 2001-853731	20010511 <--
	ZA 2002008500	A	20040128	ZA 2002-8500	20021021 <--
	NO 2002005450	A	20021114	NO 2002-5450	20021114 <--
	US 2004147431	A1	20040729	US 2004-780297	20040217 <--
PRAI	EP 2000-110355	A	20000515 <--		
	EP 2001-943331	A3	20010508 <--		
	WO 2001-EP5187	W	20010508 <--		
	US 2001-853731	A1	20010511 <--		

AB The present invention relates to a liquid pharmaceutical composition comprising an **erythropoietin** protein, a multiple charged inorg. anion in a pharmaceutically acceptable buffer suitable to keep the solution pH in the range from about 5.5 to about 7.0, and optionally one or more

pharmaceutically acceptable excipients. This composition is especially useful for the prophylaxis and treatment of diseases related to erythropoiesis.

IT **96024-34-9P, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced) **134547-95-8P, 1-165-Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; stabilized **erythropoietin** pharmaceutical composition)

IT **11096-26-7P, Erythropoietin**
RL: BPN (Biosynthetic preparation); PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(stabilized **erythropoietin** pharmaceutical composition)

IT **25322-68-3D, Polyethylene glycol**, protein **conjugates**
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(stabilized **erythropoietin** pharmaceutical composition)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Alkermes	1996			WO 9640073 A	HCAPLUS
Chugai Seiyaku Kk	1986			EP 0178665 A	HCAPLUS
Chugai Seiyaku Kk	1986			GB 2171304 A	HCAPLUS
Chugai Seiyaku Kk	1999			EP 0909564 A	HCAPLUS
Woog, H	1991			US 4992419 A	HCAPLUS

L112 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:762861 HCAPLUS
DN 135:308846
TI Chemically modified novel **erythropoietin** stimulating protein compositions and methods
IN Kinstler, Olaf Boris; Gegg, Colin V.; Freeman, Aimee; Boone, Thomas Charles
PA Amgen Inc., USA
SO PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001076640	A2	20011018	WO 2001-US11346	20010406 <--
WO 2001076640	A3	20020627		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6586398	B1	20030701	US 2000-545335	20000407 <--

CA 2405716 AA 20011018 CA 2001-2405716 20010406 <--
EP 1267942 A2 20030102 EP 2001-928395 20010406 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
JP 2003530361 T2 20031014 JP 2001-574155 20010406 <--
US 2003166566 A1 20030904 US 2003-409807 20030407 <--
PRAI US 2000-545335 A 20000407 <--
WO 2001-US11346 W 20010406 <--

AB The present invention broadly relates to the field of protein modification, and, more specifically, the attachment of water soluble polymers to novel **erythropoietin** stimulating protein (NESP). **PEG**-NESP **conjugates** were prepared by coupling either 5 kD or 20 kD methoxy-**PEG** hydrazides to NESP through aldehydes generated in the NESp carbohydrate chains by Na periodate oxidation

IT **25322-68-3DP, Peg, conjugates** with novel **erythropoietin** stimulating protein **209810-58-2DP**, NESP, **conjugates**, with **PEG** derivs.
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(chemical modified novel **erythropoietin** stimulating protein compns.)

L112 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2001:534717** HCAPLUS
DN 136:314807
TI New drug delivery system-**conjugation** of protein and peptide with **polyethylene glycol**
AU Yin, Chunhua; Zhang, Min
CS School of Life Sciences, Fudan University, Shanghai, 200433, Peop. Rep. China
SO Zhongguo Yaoxue Zazhi (Beijing, China) (**2001**), 36(5), 292-296
CODEN: ZYZAEU; ISSN: 1001-2494
PB Zhongguo Yaoxue Zazhishe
DT Journal; General Review
LA Chinese
AB A review with 40 refs. on new drug delivery system-drug **conjugate** of protein and peptide with **polyethylene glycol** with subdivision headings: (1) adenosine deaminase; (2) asparaginase; interleukin 2 and interleukin 6; (4) tumor necrosis factors; (5) colony-stimulating factor, **erythropoietin**, and megakaryocyte growth and development factor; (6) superoxide dismutase; (7) hirudin and urokinase; (8) Hb; (9) interferon; and (10) others.
IT **25322-68-3D, Polyethylene glycol, conjugates** with peptides
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(peptide **conjugates** with **polyethylene glycol** as new drug delivery system)

L112 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:131193 HCAPLUS
DN 134:183490
TI Hydrophilic and lipophilic balanced microemulsion formulations of free-form and/or **conjugation**-stabilized therapeutic agents such as insulin
IN Ekwuribe, Nnochiri Nkem; Ramaswamy, Muthukumar; Radhakrishnan, Balasingam; Allaudeen, Hameedsulthan S.
PA Protein Delivery, Inc., USA
SO U.S., 32 pp., Cont.-in-part of U. S. 5,681,811.
CODEN: USXXAM

DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6191105	B1	20010220	US 1997-958383	19971027 <--
	US 5359030	A	19941025	US 1993-59701	19930510 <--
	US 5438040	A	19950801	US 1994-276890	19940719 <--
	US 5681811	A	19971028	US 1995-509422	19950731 <--
	US 2003229006	A1	20031211	US 2003-448524	20030530 <--
	US 2003229010	A1	20031211	US 2003-448535	20030602 <--
PRAI	US 1993-59701	A3	19930510 <--		
	US 1994-276890	A2	19940719 <--		
	US 1995-509422	A2	19950731 <--		
	US 1997-958383	A3	19971027 <--		
	US 2000-614203	A1	20000712 <--		

AB A therapeutic formulation comprising a microemulsion of a therapeutic agent in free and/or **conjugate** coupled form, wherein the microemulsion comprises a water-in-oil (w/o) microemulsion including a lipophilic phase and a hydrophilic phase, and has a hydrophilic and lipophilic balance (HLB) value between 3 and 7 is described. The therapeutic agent is selected from the group consisting of insulin, calcitonin, ACTH, glucagon, somatostatin, somatotropin, somatomedin, parathyroid hormone, **erythropoietin**, hypothalamic releasing factors, prolactin, thyroid stimulating hormones, endorphins, enkephalins, vasopressin, non-naturally occurring opioids, superoxide dismutase, interferon, asparaginase, arginase, arginine deaminease, adenosine deaminase, RNase, trypsin, chymotrypsin, papain, Ara-A (Arabinofuranosyladenine), acylguanosine, nordeoxyguanosine, azidothymidine, dideoxyadenosine, dideoxycytidine, dideoxyinosine, floxuridine, 6-mercaptopurine, doxorubicin, daunorubicin, or I-darubicin, erythromycin, vancomycin, oleandomycin, ampicillin, quinidine and heparin. In a particular aspect, the invention comprises an insulin composition suitable for parenteral as well as non-parenteral administration, preferably oral or parenteral administration, comprising insulin covalently coupled with a polymer including (i) a linear polyalkylene glycol moiety and (ii) a lipophilic moiety, wherein the insulin, the linear polyalkylene glycol moiety and the lipophilic moiety are conformationally arranged in relation to one another such that the insulin in the composition has an enhanced in vivo resistance to enzymic degradation, relative to insulin alone. The microemulsion compns. of the invention are usefully employed in therapeutic as well as non-therapeutic, e.g., diagnostic, applications. For example, a microemulsion formulation was prepared containing Capmul MCM 53.0, Centrophase 31 5.7, propylene glycol 19.9, Tween 80 1.4, hexyl insulin in NaP buffer 15 mg/mL, and NaP buffer up to 100%, resp. Also, preparation of hexyl insulin **conjugates** with Me (ethylene glycol)7-O-hexanoic acid was carried out.

IT **9004-74-4**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrophilic and lipophilic balanced microemulsions of free and/or **conjugated** drugs such as insulin)

IT **212969-35-2P 326892-09-5P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(hydrophilic and lipophilic balanced microemulsions of free and/or **conjugated** drugs such as insulin)

IT **25322-68-3DP, Polyethylene glycol,**
conjugates with tetrahydropyran derivative and insulin
212969-35-2DP, conjugates with hexyl insulin
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological

study); PREP (Preparation); USES (Uses)
(hydrophilic and lipophilic balanced microemulsions of free and/or **conjugated** drugs such as insulin)

IT **11096-26-7, Erythropoietin 25322-68-3, Polyethylene glycol**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydrophilic and lipophilic balanced microemulsions of free and/or **conjugated** drugs such as insulin)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abuchowski, A	1981		368	Enzymes as Drugs	
Ahrens	1990			US 4935246	HCAPLUS
Akiyama, M	1978	26	981	Chem Pharm Bull	HCAPLUS
Anon	1993			WO 9301802	HCAPLUS
Aoshima, M	1977	37	2481	Cancer Research	HCAPLUS
Appelgren	1989			US 4840799	HCAPLUS
Baker, D	1978	21	1218	J Med Chem	HCAPLUS
Banting, R	1922	12	141	The Canadian Med Ass	
Baudys		39	145	J Contr Rel	HCAPLUS
Baudys, M	1992	19	210	Proceed Intern Symp	
Boccu, E	1982	14	11	Pharm Res comm	
Brange, J	1992	9	715	Pharm Res	HCAPLUS
Brange, J	1992	9	727	Pharm Res	HCAPLUS
Chien, Y	1992		678	Novel Drug Delivery	
Conradi, R	1991	8	1453	Pharm Res	HCAPLUS
Davis	1979			US 4179337	HCAPLUS
Desai	1993			US 5206219	HCAPLUS
Ecanow	1989			US 4849405	HCAPLUS
Ecanow	1990			US 4963367	HCAPLUS
Eckenhoff	1987			US 4684524	HCAPLUS
Eckenhoff	1988			US 4717566	HCAPLUS
Gish, D	1971	14	1159	J Med Chem	HCAPLUS
Gupta	1991			US 5055300	HCAPLUS
Harris	1999			US 5932462	HCAPLUS
Heimlich	1966			US 3256153	
Hong	1986			US 4622392	HCAPLUS
Hong, C	1986	29	2038	J Med Chem	HCAPLUS
Hostetler, K	1990	265	6112	The Journal of Biolo	HCAPLUS
Huper	1977			US 4044196	HCAPLUS
Igarashi, R	1990	17	367	Proceed Intern Symp	
Maislos, M	1986	77	717	J Clin Invest	HCAPLUS
Makino	1991			US 5055304	HCAPLUS
Meisner	1986			US 4585754	HCAPLUS
Mill	1977			US 4003792	HCAPLUS
Nucci	1991	6	133	Ac Drug Del Rev	HCAPLUS
Oka, K	1990	7	852	Pharm Res	HCAPLUS
Owen	1995			US 5444041	HCAPLUS
Patel, H	1976	62	60	FEBS Letters	HCAPLUS
Ratner, R	1990	39	728	Diabetes	MEDLINE
Robbins, D	1987	36	838	Diabetes	MEDLINE
Russell-Jones, G	1992	19	102	Proceed Intern Symp	
Saffran, M	1979	57	548	National Research Co	HCAPLUS
Saffran, M	1986	233	1081	Science	HCAPLUS
Santiago, N	1992	19	116	Proceed Intern Symp	
Sharma	1989			US 4797288	HCAPLUS
Snipes	1988			US 4744976	
Speaker	1992			US 5093198	HCAPLUS
Steinke	1987			US 4698264	HCAPLUS

Taniguchi, T	1992	19	104	Proceed Intern Symp	
Ueno	1983			US 4410547	HCAPLUS
Vanlerberghe	1988			US 4772471	HCAPLUS
Woodle	1991			US 5013556	HCAPLUS
Yiv	1998			US 5707648	HCAPLUS
Zalipsky, S	1983	19	1177	Eur Polym J	HCAPLUS

L112 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2001:31360** HCAPLUS
DN 134:105827
TI **Erythropoietin** derivatives
IN Burg, Josef; Hilger, Bernd; Josel, Hans-Peter
PA F. Hoffmann-La Roche A.-G., Switz.
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001002017	A2	20010111	WO 2000-EP6009	20000628 <--
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2378533	AA	20010111	CA 2000-2378533	20000628 <--
	CA 2378533	C	20060214		
	US 6340742	B1	20020122	US 2000-604871	20000628 <--
	EP 1196443	A2	20020417	EP 2000-951312	20000628 <--
	EP 1196443	B1	20040526		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	BR 2000012138	A	20020507	BR 2000-12138	20000628 <--
	TR 200103782	T2	20020521	TR 2001-200103782	20000628 <--
	JP 2003503464	T2	20030128	JP 2001-507507	20000628 <--
	AU 768452	B2	20031211	AU 2000-64299	20000628 <--
	NZ 516170	A	20040227	NZ 2000-516170	20000628 <--
	AT 267840	E	20040615	AT 2000-951312	20000628 <--
	RU 2232163	C2	20040710	RU 2002-102232	20000628 <--
	PT 1196443	T	20040930	PT 2000-951312	20000628 <--
	ES 2220501	T3	20041216	ES 2000-951312	20000628 <--
	ZA 2001010097	A	20030307	ZA 2001-10097	20011207 <--
	NO 2001006304	A	20020219	NO 2001-6304	20011221 <--
	HK 1047597	A1	20050812	HK 2002-109179	20021218 <--
PRAI	US 1999-142243P	P	19990702 <--		
	US 1999-147452P	P	19990805 <--		
	US 1999-151454P	P	19990830 <--		
	WO 2000-EP6009	W	20000628 <--		

AB **Erythropoietin** glycoprotein **conjugates** are disclosed, said **conjugates** comprise an **erythropoietin** glycoprotein having at least one free amino group and having the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and selected from the group consisting of human **erythropoietin** and analogs thereof which have the primary structure of human **erythropoietin** modified by the addition of from 1 to 6 **glycosylation** sites or by the rearrangement of at

least one **glycosylation** site; said glycoprotein being covalently linked to form one to three lower-alkoxy **poly(ethylene glycol)** groups, each **poly(ethylene glycol)** group being covalently linked to the glycoprotein via a linker of the formula -C(O)-X-S-Y- with the C(O) of the linker forming an amide bond with one of said amino groups, wherein X and Y are as defined in the description and claims, the average mol. weight of each **poly(ethylene glycol)** moiety is from about 20 kilodaltons to about 40 kilodaltons, and the mol. weight of the **conjugate** is from about 51 kilodaltons to about 175 kilodaltons.

IT **96024-34-9, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced) **134547-95-8**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(amino acid sequence; **erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

IT **11096-26-7D, Erythropoietin, conjugates**
25322-68-3D, erythropoietin conjugates
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing production of erythrocytes and reticulocytes)

L112 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN **2001:10610** HCAPLUS
DN 134:91083
TI **Erythropoietin** derivatives for increasing bone marrow production of reticulocytes and erythrocytes
IN Bailon, Pascal Sebastian
PA F. Hoffmann-La Roche A.-G., Switz.
SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1064951	A2	20010103	EP 2000-113115	20000628 <--
EP 1064951	A3	20020320		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6583272	B1	20030624	US 2000-604938	20000627 <--
CA 2310536	AA	20010102	CA 2000-2310536	20000628 <--
NO 2000003372	A	20010103	NO 2000-3372	20000628 <--
AU 2000042744	A5	20010104	AU 2000-42744	20000628 <--
AU 736067	B2	20010726		
TR 200001956	A2	20010122	TR 2000-200001956	20000628 <--
HR 2000000436	A1	20010630	HR 2000-436	20000628 <--
NZ 505454	A	20011221	NZ 2000-505454	20000628 <--
ZA 2000003282	A	20010102	ZA 2000-3282	20000629 <--
CN 1280137	A	20010117	CN 2000-107889	20000629 <--
SG 92717	A1	20021119	SG 2000-3658	20000629 <--
CN 1515590	A	20040728	CN 2004-10003602	20000629 <--
DE 10031839	A1	20010201	DE 2000-10031839	20000630 <--
GB 2353281	A1	20010221	GB 2000-16205	20000630 <--
GB 2353281	B2	20040609		

cited in Appl

	BG 104570	A	20010928	BG 2000-104570	20000630 <--
	IT 2000MI1479	A1	20011231	IT 2000-MI1479	20000630 <--
	IT 1318606	B1	20030827		
	ES 2191511	A1	20030901	ES 2000-1625	20000630 <--
	ES 2191511	B1	20050101		
	GB 2393960	A1	20040414	GB 2004-86	20000630 <--
	GB 2393960	B2	20040804		
	FR 2795734	A1	20010105	FR 2000-8609	20000703 <--
	FR 2795734	B1	20050930		
	JP 2001064300	A2	20010313	JP 2000-201525	20000703 <--
	JP 3727009	B2	20051214		
	BR 2000002276	A	20011211	BR 2000-2276	20000703 <--
	HK 1033328	A1	20050506	HK 2001-104020	20010612 <--
	US 2003120045	A1	20030626	US 2002-293551	20021114 <--
	JP 2004155787	A2	20040603	JP 2003-419520	20031217 <--
PRAI	US 1999-142254P	P	19990702 <--		
	US 1999-150225P	P	19990823 <--		
	US 1999-151548P	P	19990831 <--		
	US 1999-166151P	P	19991117 <--		
	US 2000-604938	A1	20000627 <--		
	GB 2000-16205	A3	20000630 <--		
	JP 2000-201525	A3	20000703 <--		

AB The present invention refers to **conjugates** of **erythropoietin** with **poly(ethylene glycol)** comprising an **erythropoietin** glycoprotein having at least one free amino group and having the in vivo biol. activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and selected from the group consisting of human **erythropoietin** and analogs thereof which have sequence of human **erythropoietin** modified by the addition of 1-6 **glycosylation** sites or a rearrangement of at least one **glycosylation** site; said glycoprotein being covalently linked to "n" **poly(ethylene glycol)** groups of the formula -CO-(CH2)x(OCH2CH2)m-OR with the carbonyl of each **poly(ethylene glycol)** group forming an amide bond with one of said amino groups; wherein R is lower alkyl; x = 2 or 4; m = 450-900; n = 1-3; and n and m are chosen so that the mol. weight of the **conjugate** minus the **erythropoietin** glycoprotein is 20-100 kDa.

IT **134547-95-8P**, 1-165-**Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **11096-26-7D, Erythropoietin, polyethylene glycol conjugates 221039-34-5, Erythropoietin** (human)
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **25322-68-3D, Polyethylene glycol**, glycoprotein **conjugates**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

IT **96024-34-9, Erythropoietin** (human clone λHEPOFL13 protein moiety reduced)
RL: PRP (Properties)
(unclaimed protein sequence; **erythropoietin** derivs. for increasing bone marrow production of reticulocytes and erythrocytes)

L112 ANSWER 24 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:640291 HCAPLUS
DN 129:261069
TI Non-antigenic branched polymer **conjugates**, their formation, and application to pro-drugs
IN Greenwald, Richard B.; Martinez, Anthony J.
PA Enzon, Inc., USA
SO PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9841562	A1	19980924	WO 1998-US4966	19980313 <--
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AT 243723	E	20030715	AT 1996-202288	19960814 <--
	ES 2202409	T3	20040401	ES 1996-202288	19960814 <--
	US 5919455	A	19990706	US 1997-821055	19970320 <--
	AU 9864630	A1	19981012	AU 1998-64630	19980313 <--
	AU 743108	B2	20020117		
	EP 973819	A1	20000126	EP 1998-910376	19980313 <--
	EP 973819	B1	20050831		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	NZ 337845	A	20010330	NZ 1998-337845	19980313 <--
	JP 2001519784	T2	20011023	JP 1998-540638	19980313 <--
	CA 2283939	C	20031028	CA 1998-2283939	19980313 <--
	CA 2283939	AA	19980924		
	AT 303412	E	20050915	AT 1998-910376	19980313 <--
	MX 9908631	A	20000331	MX 1999-8631	19990920 <--
PRAI	US 1997-821055	A	19970320 <--		
	US 1993-143403	A2	19931027 <--		
	US 1995-440732	A3	19950515 <--		
	US 1996-696198	A2	19960813 <--		
	EP 1996-202288	A	19960814 <--		
	WO 1998-US4966	W	19980313 <--		

AB **Conjugates** prepared with branched, substantially nonantigenic polymers having terminal functionally reactive groups and biol. active mols., such as proteins and peptides, demonstrate extended circulating life in vivo. **Erythropoietin** was a **conjugate** of methoxypolyethylene glycol hydroxysuccinmide derivative
IT **9004-74-4DP, Polyethylene glycol** monomethyl ether, succimidyl carbonate derivative, reaction products with aliphatic linking compds.
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT

(Reactant or reagent)
(non-antigenic branched polymer **conjugates** with biol. active compds. for pro-drugs)

IT **11096-26-7DP, Erythropoietin, conjugate** with hydroxysuccinmide functional **polyethylene glycol**
RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(non-antigenic branched polymer **conjugates** with biol. active compds. for pro-drugs)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Greenwald	1994			US 5321095 A	HCAPLUS
Saifer	1994			US 5283317 A	HCAPLUS
Zalipsky	1993			US 5219564 A	HCAPLUS
Zalipsky	1994			US 5324844 A	HCAPLUS

L112 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:112262 HCAPLUS
DN 128:196654
TI Polypeptides having a single covalently bound N-terminal water-soluble polymer
IN Wei, Ziping; Menon-rudolph, Sunitha; Ghosh-Dastidar, Pradip
PA Ortho Pharmaceutical Corp., USA
SO PCT Int. Appl., 51 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9805363	A2	19980212	WO 1997-US13756	19970801 <--
	WO 9805363	A3	19980507		
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2262994	AA	19980212	CA 1997-2262994	19970801 <--
	AU 9739085	A1	19980225	AU 1997-39085	19970801 <--
	BR 9711009	A	19990817	BR 1997-11009	19970801 <--
	CN 1226176	A	19990818	CN 1997-196829	19970801 <--
	EP 964702	A2	19991222	EP 1997-936407	19970801 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI				
	NZ 333993	A	20000128	NZ 1997-333993	19970801 <--
	JP 2000515553	T2	20001121	JP 1998-508173	19970801 <--
	RU 2199347	C2	20030227	RU 1999-103679	19970801 <--
	AU 778790	B2	20041223	AU 2001-48082	19970801 <--
	AU 2001048082	A5	20010802		
	KR 2000029673	A	20000525	KR 1999-700751	19990129 <--
	NO 9900465	A	19990323	NO 1999-465	19990201 <--
	MX 9901184	A	20000331	MX 1999-1184	19990201 <--
PRAI	US 1996-23050P	P	19960802 <--		
	AU 1997-39085	A3	19970801 <--		
	WO 1997-US13756	W	19970801 <--		

AB This invention provides compns. consisting essentially of a polypeptide such as **erythropoietin** and a water-soluble polymer such as

PEG covalently bound thereto at the N-terminal α-carbon atom via a hydrazone or reduced hydrazone bond, or an oxime or reduced oxime bond. This invention also provides methods of making the instant compns., pharmaceutical compns. comprising same, and kits for use in preparing same.

IT **9004-74-4DP**, Mpeg, **erythropoietin** derivs.
11096-26-7DP, **Erythropoietin**, **PEG** derivs.
25322-68-3DP, **Peg**, **erythropoietin** derivs.
RL: PNU (Preparation, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(polypeptides having a single covalently bound N-terminal water-soluble polymer)

L112 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:701459 HCAPLUS
DN 128:26913
TI **Conjugation**-stabilized therapeutic agent compositions, delivery and diagnostic formulations comprising same, and method of making and using the same
IN Ekwuribe, Nnochiri Nkem
PA Protein Delivery, Inc., USA
SO U.S., 23 pp., Cont.-in-part of U.S. 5,438,040.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5681811	A	19971028	US 1995-509422	19950731 <--
	US 5359030	A	19941025	US 1993-59701	19930510 <--
	US 5438040	A	19950801	US 1994-276890	19940719 <--
	CA 2227891	AA	19970213	CA 1996-2227891	19960729 <--
	WO 9704796	A1	19970213	WO 1996-US12425	19960729 <--
	W: AU, CA, CN, IL, JP, MX				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9666409	A1	19970226	AU 1996-66409	19960729 <--
	AU 698944	B2	19981112		
	EP 841936	A1	19980520	EP 1996-926169	19960729 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	CN 1192690	A	19980909	CN 1996-196079	19960729 <--
	JP 11511131	T2	19990928	JP 1996-507838	19960729 <--
	US 6191105	B1	20010220	US 1997-958383	19971027 <--
	US 2003229006	A1	20031211	US 2003-448524	20030530 <--
	US 2003229010	A1	20031211	US 2003-448535	20030602 <--
	US 2005181976	A1	20050818	US 2004-977849	20041029 <--
PRAI	US 1993-59701	A3	19930510 <--		
	US 1994-276890	A2	19940719 <--		
	US 1995-509422	A	19950731 <--		
	WO 1996-US12425	W	19960729 <--		
	US 1997-958383	A3	19971027 <--		
	US 2000-614203	A1	20000712 <--		
	US 2003-448524	A1	20030530 <--		

AB A stabilized **conjugated** therapeutic agent complex comprising a therapeutic agent **conjugatively** coupled to a polymer including lipophilic and hydrophilic moieties, wherein the therapeutic agent may for example be selected from the group consisting of insulin, calcitonin, ACTH, glucagon, somatostatin, somatotropin, somatomedin, parathyroid hormone, **erythropoietin**, hypothalamic releasing factors, prolactin, thyroid stimulating hormones, endorphins, enkephalins, vasopressin, non-naturally occurring opioids, superoxide dismutase,

interferon, asparaginase, arginase, arginine deaminase, adenosine deaminase, RNase, trypsin, chymotrypsin, papain, Ara-A (Arabinofuranosyladenine), Acylguanosine, Nordeoxyguanosine, Azidothymidine, Dideoxyadenosine, Dideoxycytidine, Dideoxyinosine Floxuridine, 6-Mercaptopurine, Doxorubicin, Daunorubicin, or Idarubicin, Erythromycin, Vancomycin, oleandomycin, Ampicillin; Quinidine and Heparin. In a particular aspect, the invention comprises an insulin composition suitable for parenteral as well as non-parenteral administration, preferably oral or parenteral administration, comprising insulin covalently coupled with a polymer including (i) a linear polyalkylene glycol moiety and (ii) a lipophilic moiety, wherein the insulin, the linear polyalkylene glycol moiety and the lipophilic moiety are conformationally arranged in relation to one another such that the insulin in the composition has an enhanced in vivo resistance to enzymic degradation, relative to insulin alone. One, two, or three polymer constituents may be covalently attached to the therapeutic agent mol., with one polymer constituent being preferred. The **conjugates** of the invention are usefully employed in therapeutic as well as non-therapeutic, e.g., diagnostic, applications, and the therapeutic agent and polymer may be covalently coupled to one another, or alternatively may be associatively coupled to one another, e.g., by hydrogen bonding or other associative bonding relationship.

IT **25322-68-3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**conjugation**-stabilized therapeutic agent compns., delivery and diagnostic formulations)

IT **11096-26-7, Erythropoietin**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**conjugation**-stabilized therapeutic agent compns., delivery and diagnostic formulations)

L112 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:398583 HCAPLUS
DN 125:95896
TI **PEG**-protein constructs for clinical use
AU Fisher, D.; Delgado, C.; Tejedor, M. C.; Malik, F.; Francis, G. E.
CS School Medicine, Royal Free Hospital, London, NW3 2PF, UK
SO Perspectives on Protein Engineering & Complementary Technologies, Collected Papers, International Symposium, 3rd, Oxford, Sept. 13-17, 1994 (**1995**), Meeting Date 1994, 223-226. Editor(s): Geisow, Michael J.; Epton, Roger. Publisher: Mayflower Worldwide, Kingswinford, UK. CODEN: 62ZQAP
DT Conference
LA English
AB Covalent attachment of **polyethylene glycol** (**PEG**) to proteins increases plasma half life, increases resistance to proteolysis and reduces antigenicity/ immunogenicity. Such benefits have prompted the development of **PEG**-proteins as therapeutic agents. A novel method of activating **PEG** with tresyl chloride, which attaches **PEG** to amino groups by a direct secondary amine linkage, without any coupling moiety (portion of the activated **PEG**) remaining in the **PEG**-protein construct have been investigated. Using **erythropoietin** and granulocyte-macrophage colony stimulating factor as the target proteins, this method has been compared with four other common methods of **PEG** activation: cyanuric acid, phenylchloroformate, carbonyldiimidazole and succinimidyl succinate. Either conservation of biol. activity or lack of toxic contaminants (or both) was inferior for the other methods.

IT **25322-68-3, Polyethylene glycol**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polyethylene glycol**-protein constructs for clin.

use)
IT **11096-26-7DP, Erythropoietin, conjugates** with **polyethylene glycol 25322-68-3DP, Polyethylene glycol, conjugates** with proteins
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**polyethylene glycol**-protein constructs for clin. use)

L112 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:541367 HCAPLUS
DN 122:282237
TI **Erythropoietin**-polymer **conjugates** containing oxidized carbohydrate-polymer linkages and their use in treating anemia
IN Chyi, Lee; Cho-ok, Myung
PA Enzon, Inc., USA
SO PCT Int. Appl., 21 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9428024	A1	19941208	WO 1994-US6098	19940531 <--
	W: AU, BG, BR, CA, CZ, FI, HU, JP, KP, KR, LK, MG, MN, MW, NO, NZ, PL, PT, RO, RU, SE, SK, UA				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9470970	A1	19941220	AU 1994-70970	19940531 <--
PRAI	US 1993-69591	A	19930601 <--		
	WO 1994-US6098	W	19940531 <--		

AB Biol. active **conjugates** of glycoproteins having erythropoietic activity and having at least one oxidized carbohydrate moiety covalently linked to a non-antigenic, water-soluble polymer are disclosed. Methods of preparing the **conjugates** are also disclosed. **Erythropoietin** was oxidized with periodate then reacted with **PEG**-β-alanine hydrazide. The hydrazone bonds were reduced with NaBH4. **PEG-erythropoietin conjugates** with increased specific activity (up to 3.1-fold) and enhanced serum half-life (11-717-fold) were prepared
IT **9004-74-4DP, conjugates** with **erythropoietin** **11096-26-7DP, Erythropoietin, conjugates** with polyalkylene oxides **25322-68-3DP, conjugates** with **erythropoietin**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**erythropoietin**-polymer **conjugates** containing oxidized carbohydrate-polymer linkages and their use in treating anemia)
IT **135649-01-3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of mPEG-carbazate for preparation of **PEG-erythropoietin conjugates**)
IT **9004-74-4**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of mPEG-β-alanine hydrazide for preparation of **PEG-erythropoietin conjugates**)

L112 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:319762 HCAPLUS
DN 122:89553
TI **PEG** hydrazone and **PEG** oxime linkage forming reagents

and protein derivatives.
IN Wright, David E.
PA Ortho Pharmaceutical Corp., USA
SO Eur. Pat. Appl., 47 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 605963	A2	19940713	EP 1993-309825	19931207 <--
	EP 605963	A3	19951108		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	CA 2110543	AA	19940610	CA 1993-2110543	19931202 <--
	FI 9305485	A	19940610	FI 1993-5485	19931208 <--
	NO 9304477	A	19940610	NO 1993-4477	19931208 <--
	ZA 9309214	A	19950608	ZA 1993-9214	19931208 <--
	AU 9352383	A1	19940623	AU 1993-52383	19931209 <--
	JP 07196925	A2	19950801	JP 1993-340709	19931209 <--
PRAI	US 1992-987739	A	19921209 <--		
	US 1993-45052	A	19930407 <--		
	US 1993-157343	A	19931123 <--		

AB Compds. for modifying polypeptides with **PEG** or other water-soluble organic polymers are described. The water-soluble polymer reagents include hydrazine, hydrazine carboxylate, semicarbazole, thiosemicarbazide, carbonic acid dihydrazide, carbazide, thiocarbazide, and arylhydrazide derivs. as well as oxylamine derivs. of water-soluble organic polymers, such as **polyethylene glycol**, polypropylene glycol, polyoxyethylated polyol, heparin, heparin fragments, dextran polysaccharides, polyamino acids, and polyvinyl alc. Kits for modifying polypeptides with the above water-soluble polymer reagents are also provided. Thus, **erythropoietin** was modified by oxidation and treatment with monomethoxypolyoxyethylene semicarbazide and the product was separated by chromatog. The antigenicity and the effect on hematocrit levels of the above derivs. were demonstrated.

IT **9004-74-4DP**, reaction products with protein derivs.
11096-26-7DP, **Erythropoietin**, reaction products with **polyoxyethylene** derivs.
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation and biol. activity of **polyoxyethylene**-coupled protein derivs.)

IT **11096-26-7**, **Erythropoietin 25322-68-3**
39828-93-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation and biol. activity of **polyoxyethylene**-coupled protein derivs.)

IT **160556-31-0P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and biol. activity of **polyoxyethylene**-coupled protein derivs.)

L112 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:227625 HCAPLUS
DN 122:196973
TI **Conjugation**-stabilized polypeptide compositions, therapeutic delivery and diagnostic formulations comprising same, and method of making and using the same

IN Ekwuribe, Nnochiri N.
PA Protein Delivery, Inc., USA
SO U.S., 22 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5359030	A	19941025	US 1993-59701	19930510 <--
	CA 2162366	AA	19941124	CA 1994-2162366	19940510 <--
	WO 9426778	A1	19941124	WO 1994-US5204	19940510 <--
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9469466	A1	19941212	AU 1994-69466	19940510 <--
	AU 694919	B2	19980806		
	EP 707596	A1	19960424	EP 1994-917946	19940510 <--
	EP 707596	B1	20050803		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	JP 08510255	T2	19961029	JP 1994-525657	19940510 <--
	EP 1264837	A1	20021211	EP 2002-77075	19940510 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
	JP 2003160598	A2	20030603	JP 2002-260459	19940510 <--
	JP 2003206236	A2	20030722	JP 2002-260460	19940510 <--
	AT 301134	E	20050815	AT 1994-917946	19940510 <--
	IL 109619	A1	20001206	IL 1994-109619	19940511 <--
	US 5438040	A	19950801	US 1994-276890	19940719 <--
	CN 1120457	A	19960417	CN 1994-117233	19941014 <--
	CN 1080575	B	20020313		
	US 5681811	A	19971028	US 1995-509422	19950731 <--
	US 6191105	B1	20010220	US 1997-958383	19971027 <--
	US 2003229006	A1	20031211	US 2003-448524	20030530 <--
	US 2003229010	A1	20031211	US 2003-448535	20030602 <--
	US 2005181976	A1	20050818	US 2004-977849	20041029 <--
PRAI	US 1993-59701	A	19930510 <--		
	EP 1994-917946	A3	19940510 <--		
	JP 1994-525657	A3	19940510 <--		
	WO 1994-US5204	W	19940510 <--		
	US 1994-276890	A2	19940719 <--		
	US 1995-509422	A2	19950731 <--		
	US 1997-958383	A3	19971027 <--		
	US 2000-614203	A1	20000712 <--		
	US 2003-448524	A1	20030530 <--		

AB A stabilized **conjugated** peptide complex comprising a peptide **conjugatively** coupled to a polymer including lipophilic and hydrophilic moieties, wherein the peptide may for example be selected from the group consisting of insulin, calcitonin, ACTH, glucagon, somatostatin, somatotropin, somatomedin, parathyroid hormone, **erythropoietin**, hypothalamic releasing factors, prolactin, thyroid stimulating hormones, endorphins, enkephalins, vasopressin, non-naturally occurring opioids, superoxide dismutase, interferon, asparaginase, arginase, arginine deaminase, adenosine deaminase, RNase, trypsin, chymotrypsin, and papain. In a particular aspect, the invention comprises an insulin composition suitable for parenteral as well as non-parenteral administration, preferably oral or parenteral administration, comprising insulin covalently coupled with a polymer including (i) a linear polyalkylene glycol moiety and (ii) a lipophilic moiety, wherein the insulin, the linear polyalkylene glycol moiety and the lipophilic moiety are conformationally arranged in relation to one another such that the insulin in the composition has an enhanced in vivo resistance to enzymic degradation, relative to insulin alone. One, two, or

three polymer constituents may be covalently attached to the insulin mol., with one polymer constituent being preferred. The **conjugates** of the invention are usefully employed in therapeutic as well as non-therapeutic, e.g., diagnostic, applications, and the peptide and polymer may be covalently coupled to one another, or alternatively may be associatively coupled to one another, e.g., by hydrogen bonding or other associative bonding relationship.

IT **25322-68-3, Peg**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**conjugation**-stabilized polypeptide compns., therapeutic delivery and diagnostic formulations)

IT **25322-68-3DP, Peg**, derivs., reaction products with peptides
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**conjugation**-stabilized polypeptide compns., therapeutic delivery and diagnostic formulations)

IT **11096-26-7D, Erythropoietin**, reaction products with polymers
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**conjugation**-stabilized polypeptide compns., therapeutic delivery and diagnostic formulations)

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